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N.A.A. BULLETIN

November 1959

In Two Sections
Section 1

Educating the Accounting

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The Uses of Return on Investment

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Articles on

Budgeting — Profit Analysis — Reporting

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Why and How We Develop Product Income Statements

by R. L. FULLER and F. K. KLEEN, JR.

PROFIT is the primary objective of any form of business transaction. In its simplest form, profit is easily determined and has in a traditional sense become the defined function of accounting. However, profit in itself is rather ambiguous and can be any excess of income over expense, ranging from one dollar to infinity. Thus, it is up to accounting to convey it meaningfully.

The complexities of multi-product structures have brought about the need for such management guides as standard costs, budgetary control, etc. However, these are only refinements over and above the basic objective—determination and improvement of profits. And these complexities have also brought a situation in which a corporate "image" is today a combination of many little businesses. We can determine the profit but we can no longer determine the comparative profitability by internal units. The corporate financial image is now an averaging of all the product lines. Although the over-all profit may be considered adequate, we have lost the ability to "measure a situation for its capacity or competence to make a profit."

Nevertheless, accounting has shown and still shows a reluctance to segregate income and expenses to the product levels, although the primary responsibility of accounting to management is to determine and help improve the profitability of products, product lines and, in turn, over-all company performance. The key word in the phrasing of this objective is "improve." Management decisions today are based on concepts materially different from those embodied in the historical accounting records. Thus accounting has a responsibility of developing and interpreting guides for management to make decisions for future performance.

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Product Income Reporting

Now that we have established the accountant's responsibility, what is our approach at Johnson & Johnson? Although there can be no definition of required reporting at the management level, we accept net income as a percentage of sales as our primary product reporting. This concept has been in existence at Johnson & Johnson for over thirty years in the traditional sense of measurement of historical operations. In order that you may fully understand the role that product income reporting plays, some clarification of our operational structure is necessary. Our company markets approximately 1,200 items grouped into some 60 product groups composed of similar items. The operating responsibility for these product groups is split off to three major departments, general line (consumer products), hospital line (institutional products), and filter line (industrial and agricultural filters). The products are manufactured in three widely separated plants: New Brunswick, Chicago, and Dallas. The three major departments charged with the operating responsibility consist of decentralized groups headed by product group directors who report to the vice presidents in charge of merchandising of each department. Each product director is, in effect, the operating head of his respective products, responsible entirely for the product image, packaging, pricing, advertising and promotion, and profit. He, therefore, has a complete responsibility to management. The product director is continually being forced to seek out, evaluate and utilize technical skills to improve the efficiency and profitability of the entire operation.

Therefore, with the complexity of our corporate product image and the decentralized management group, it became increasingly important to develop new ideas to give management operating information. Approximately two years ago, in joint agreement with the merchandising department, we started on a new stage of development of our reporting. This is forecast product income reporting. Through the use of forecast product income statements, we give operating management a guide for determining whether performance is good or bad on a current basis, as well as a control on future planning. It gives management a basis to appraise current profitability and historical growth and provides a performance standard for future profitability and future growth; it directs management's supervision to where it is most needed and where it will be most productive; it assists management in formulating future capital expansion and marketing plans; and it gives management the ability to determine a product return on capital.

Before discussing some specific examples of the use of these statements, we

Johnson & Johnson

PRODUCT INCOME STATEMENT

SPECIAL PRODUCT
(in thousands of dollars)

Mr. N. L. Jones

Description	1958 Actual Direct	Allocated	Total	%	1958 Forecast Amount	%
Gross Sales			$8,600		$8,260	
Less Cash discounts			166		160	
Net Sales			8,434	100.0	8,100	100.0
Cost of Goods Sold						
Standard cost	$5,330		5,330	63.2	5,265	65.0
Special direct charges	59		59	.7	55	.8
Engineering		$18	18	.2	19	.2
Other costs not in standards	10	6	16	.2	12	.1
Total	5,399	24	5,423	64.3	5,351	66.1
Actual Gross Profit			3,011	35.7	2,749	33.9
Other Operating Expenses						
Sales Promotion						
Departmental - Products	190		190	2.3	188	2.3
Departmental - other		10	10	.1	12	.1
Deals		24	24	.3	26	.4
Total Sales Promotion	190	34	224	2.7	226	2.8
Merchandising Management	20	5	25	.3	25	.3
Selling		142	142	1.7	140	1.7
Stock, shipping & traffic		90	90	1.1	90	1.1
Freight, express & trucking	180		180	2.2	180	2.2
Administrative & general corporate		106	106	1.2	101	1.2
Product research & development	26	20	46	.4	43	.6
Total	416	397	813	9.6	805	9.9
Income or (loss) before taxes			2,198	26.1	1,944	24.0
Income or (loss) after taxes			$1,055	13.0	$ 972	12.0
Supplementary Data						
Standard Gross Profit			3,104	36.8	2,835	35.0

EXHIBIT 1

will describe our system of reporting. The product income statement (Exhibit 1) which is incorporated in the Johnson & Johnson's system of financial planning and control is the same as that used in reporting over-all company income and has been developed for utilization in the detailed distribution of sales, costs, and expenses for each product group. The columnar headings, "direct" and "allocated," summarize those expenses which can be directly identified with the product group and those which have been allocated. Our schedule of reporting and the detail by control segment is as described in the following paragraphs.

The preliminary annual forecast product income statement is prepared and issued during the month of September preceding the forecast year. The preliminary forecast reflects the original target based on an estimated sales volume and thus becomes an integral part of the product directors' marketing plan for each product group. The product directors furnish the controller's staff with alternative sales plans varying as to volume and advertising programs. Forecast income statements are prepared under the alternative targets, submitted to the product directors and used by them as one of the guides in their evaluation of the various advertising programs. Costs and expenses are assessed to the sales plans on the basis of prior history, current programs, and review by each responsible department head for his area of cost and expense. The main purpose of the preliminary forecast statements is to evaluate the effect of advertising alternatives. The forecasts are adjusted in December to agree with the final company forecast for the ensuing year.

Quarterly annual forecast revisions are prepared and issued during the months of April, July, and October in the forecast year. As the year progresses, the forecast revisions reflect the actual expenses to date. These reports form the basis of the control feature of our reporting system. Variances from the preliminary forecast are investigated for the purpose of cost control. In addition, the product directors and merchandising management use these as a guide in evaluation of their advertising programs.

Actual product income statements are prepared and issued during the month of February following the year under review. They are used primarily as measures of profit performance as compared with original forecast.

Reports issued under the above schedule are released to corporate management (a summary statement with a detailed interpretative covering letter), to merchandising management (a summary also with a detailed interpretative covering letter and, in addition, detailed product income statements summarized by product group director assignment and product director assignment with verbal explanations of significant points), to product group directors (product income statements summarized by product director assignment), and to product director (product income for each product group, with a summary of all product groups under his control).

The responsibility for product income reporting rests with the staff analysis group in the controller's department at New Brunswick. The branches in Chicago and Dallas participate in allocating and summarizing their manufacturing and transportation costs as requested by New Brunswick.

The Source of Data and Distribution Bases

The realizable annual sales forecast is estimated by the market research department in conjunction with the product directors. Market research prepares a quantity sales plan which is extended at the lowest selling price adjusted for certain allowances. This sales plan is also used for production planning and control. Actual sales in amount are recorded for the year. The product director receives a detailed tabulation each quarter—listing sales, standard cost, and gross profit for each product within a product group. Cash discount forecast is based on current experience. Standard cost forecast is based on the sales plan quantity extended at standard cost. Adjustments are made for promotional merchandise which is charged to sales promotion at standard cost. Special direct charges forecast is prepared jointly by the merchandising department and controller's staff. The engineering forecast is based on approved projects and past experience. Other costs not included in standards forecast is based on prior year's experience with adjustments for anticipated cost savings which are not reflected in standard cost. Sales promotion represents advertising and related expenses for each product group which is controlled directly by each product director. Deals records the expense of general promotions allocated only to products included in the promotions. All product directors' expenses are departmentalized at the product group director level. Each product group director's expenses are allocated to his products on the basis of standard cost of sales of products he controls.

Total selling expense for each major line is allocated in a predetermined percent of selling effort devoted to each product group. This percentage is developed jointly by sales and merchandising management and reflects the sales department promotional calendar, number of items in line, sales volume and type of selling effort for product (institutional, industrial, and consumer). Stock, shipping and traffic expenses are broken down into three categories: storage facilities, shipping movement and traffic management. Four quarterly finished goods case inventories are converted to a common volume unit (pallets). Each product has a pallet pattern which converts cases for each group to a uniform pallet. These pallets are then used to allocate the expense related to storage facilities. Unit sales by product are converted to cases. These cases are then used as a base to allocate the expense related to shipping movement. Virtually all our sales are in case lots. Traffic management expenses are allocated on the same basis as costs of freight, express, and trucking, i.e. distributed to products based on sales quantity converted to weight multiplied by

a freight factor. The traffic department develops the freight factor for us as follows:

1. Five major cities are selected within each rate-making territory that will give a representative average rate based on both distance and volume.
2. A percentage relationship is developed from the rate that is paid for each commodity group or compared to the first-class rail rate for each representative destination. Each set of rates is averaged to determine the percentage of the average actual rate to the average rail first-class rate.
3. Based on trailer loading, the percentage of total loadings that are shipped to the various rate-making territories is determined. The percentage of total loadings to each rate-making territory is weighted as compared with the percent to rail first class for each commodity group, as shown below:

RATE TERRITORY	PERCENT LOADINGS	% RAIL FIRST CLASS ON PRODUCT X	FREIGHT RATE FACTOR
New England	16.5	86	14.2
Middle Atlantic	37.8	96	36.3
New York	24.3	114	30.0
Southern	15.4	91	14.0
Florida	6.0	81	4.9
Total	100.0		99.4

In the above example, if it is assumed that the rail first-class rate, or basing point, is $1.00 per hundred pounds, the applicable rates on Product X commodities would be $.994 per hundred pounds. The $.994 is the freight rate factor paid on every hundred pounds of Product X. Each product has its own separate freight rate factor.

The distribution of administrative and general corporate expenses is based on all other costs and expenses assigned to the product on each individual product income statement. It is felt that administrative and general corporate effort follows the dollar amount expended to all other costs and expenses. For product research and developments costs our system of accounting incorporates a reporting system by project. Coding structure is maintained by projects assigned by our research department. Employee time is accumulated by projects and summarized on a monthly basis. A calculated hourly rate is then applied to this time and a project cost developed. Included in this hourly rate computation are the applicable administrative and overhead costs. All direct expenses for materials and supplies are charged direct to the applicable project. These proj-

ects can be categorized in three major areas: identified directly to the product level, to the line level or to basic research. Projects identified to the line level are distributed to the product groups within the line based on standard cost. Basic research is assessed against all products in the corporate structure on the basis of standard cost, under the concept that this is a cost of doing business and all products must carry their share. This report serves a dual function as a control for research spending and a basis for distribution to the product level.

What We Gained

The program as outlined has been devised so that pertinent timely information may be summarized for management's review. To be effective, information must be timely and to be timely it is sometimes necessary to use broad approaches. A great deal of the reluctance of accounting to segregate income and expenses has been the reluctance to use a broad approach. Our philosophy has been to emphasize comparability where the bases have been applied consistently. Thus trends and wide deviations from company norms are what we look for.

Product income statements represent but one of the management controls through which areas requiring corrective action may be pin-pointed. Over the past years, several interesting studies have been undertaken through the highlighting of situations on product income reports. Several of these are detailed below:

1. A study of certain abnormally high warehousing and freight cost relationships resulted in a method of compressing one product with a substantial savings in warehousing and freight costs.
2. A comparison of actual gross profit margins with standard disclosed some wide variations. Subsequent investigations revealed that the variations were caused in part by the accounting treatment of the so called modern promotional gimmicks, bonus offers, price concessions, etc. The effect of these offers was lost in either sales or standard cost of sales. Management, under this system, had no way of evaluating the cost of these promotional programs. This type of promotional activity had increased to the point where it was a significant part of our merchandising program. Without product information, the cost of these programs would have been hidden in the over-all company variation along with other factors such as product mix, etc. Agreement was reached to value these offers at standard cost and to identify this expense under sales promotion. Management was thus able to evaluate the program in terms of over-all profitability.
3. Our previous concept on new product development was that costs

were borne by existing products until the new product was actually marketed. The rising cost and increased activity in this area created some serious distortion to existing products. Our present method is to charge these costs to a new products category when the decision to market this product is reached. This, in most cases, is several years before actual marketing occurs. Generally it is more than one year before an introductory product returns a profit because of high costs of initial marketing, selling, and control activities. The loss on new products during this period is considered an investment and is carried forward for product income reporting purposes until such time as the product shows a cumulative profit. Long-range forecasts are prepared for new products to properly evaluate the proposed investments in terms of potential profitability.

4. A task force composed of merchandising, manufacturing, research, engineering, cost and financial accounting personnel has been created to investigate the possibilities of cost control on specific products where the product income reports have shown abnormal cost relationships. The conclusions of this task force will be evaluated in terms of the over-all profitability.

One of the major stepping stones in any reporting system is the acceptance of and confidence in the reporting. Active participation in our program, at all levels of management, has resulted in a better understanding of the problems of each department. This, in itself, is a significant contribution of our reporting system. Awareness of the problems is half the distance to the goal in any effective cost control program.

A Way of Using Direct Costing in Financial Reporting

by HAROLD BIERMAN, JR.

IN RECENT YEARS direct costing has increased in popularity for purposes of internal reporting and decision making. The increased use by management of this technique has brought into focus the companion question reviewed in this paper. Should direct costing be used for financial reporting purposes, especially statements issued to stockholders?

Criteria for Judging Financial Reporting Procedures

What is good financial reporting? Generally speaking, there are three criteria which are used in deciding what shall constitute suitable reporting:

1. Accordance with generally accepted accounting practice and conventions as set forth by professional organizations and governmental bodies.
2. Accordance with basic accounting theory as described in accounting literature.
3. Usefulness for decision-making.

All too frequently the first two criteria are cited by authors as being the determining factors in choosing the proper method. The third criterion is neglected or assumed to be automatically covered by accounting practice or basic accounting theory. This assumption is unwarranted.

If accounting practice is to be the determining criterion, then change is impossible since, by definition, what is being done is correct. It is hoped that some day accounting practice will reach a high state of perfection and change will be unnecessary. Such is not presently the case. Thus the accounting practice in effect today is of interest, but a statement of convention should not be used to prove that a procedure is correct or incorrect. The fact that Accounting Research Bulletin 43 approves absorption costing tells us what is currently approved

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by the American Institute of Certified Public Accountants. It does not help us decide whether direct costing would be a more reasonable procedure than current practice.

The criterion of accounting theory should not be discarded lightly. The authors of the past fifty years have contributed tremendously to raising the level of accounting practice. The fact that thought-provoking writings have been produced by such men as Cole, Hatfield, and Paton make us reluctant to modify time-honored concepts. However, it must be recognized that these men changed accounting practice, advocated further changes not accepted, and certainly did not intend to freeze all accounting thought. Thus, to quote accounting authorities as justification for an accounting procedure, is meaningful only to the extent that the logic of the authority is applicable to the present situation and actually does prove that one or another position is sound. And even when logically presented that one position is sound, it does not follow that another position is not sound.

Including Fixed Costs as Product Costs — Pros and Cons

The adherents of direct costing for financial reporting purposes argue that only variable costs may be said to be costs of product. Fixed costs would be incurred in any event and thus are costs of the period, not costs of product. This argument has some validity but falls short of proving the case for direct costing. A fixed cost may not be as inevitable or as non-relevant as the variable costing adherents suggest.

Let us analyze the wages of a plant manager and the depreciation of the plant. These are fixed costs, but it is possible that, if there were no intention of producing the product, the plant could be sold or diverted to producing another product and the plant manager then could be switched to another job. The fixed costs are relevant costs of product when there are opportunity costs connected with factors of production which give rise to the fixed costs. Thus the value of the plant manager's services, if he were performing other tasks, represents the opportunity cost of the plant manager working on the present product. In like manner, the funds which would result from the sale of a plant or the net revenues which would result from other uses of the plant are the opportunity costs of using the plant to make the present product. It may not be unreasonable to substitute the wages of the plant manager and the depreciation of the plant for the opportunity costs of these factors of production, and consider these costs as a cost of product.

Another strong argument in favor of including fixed costs as a cost of product

is the concept of matching expenses with the revenues which they help earn. If fixed costs are a valid cost of product (as indicated above), they should not be recognized as an expense until the product is sold. The accounting treatment of the variable and fixed costs factors identified as costs of product should not be different. This is the position of the Committee on Accounting Concepts and Standards of the American Accounting Association in "Accounting and Reporting Standards for Corporate Financial Statements," issued in 1957 with two members in dissent.

In many cases the factors of production which give rise to the fixed costs do not have alternative uses; thus their opportunity costs are zero. The fixed costs are time period costs, not costs of product, since they would be incurred even if no product were produced. The variable (or incremental) costs incurred in producing the units of product are the costs of product, not the total costs incurred during the period.

If the above argument is accepted, then cost expiration is properly matched with the revenues earned when the fixed costs are considered expenses of the period in which the cost expiration occurred.

There would seem to be reasonable arguments for both inclusion and exclusion of fixed costs. The author believes that on the basis of the arguments presented above, the balance is in favor of including the fixed costs in the cost of product, thus including them in inventory. This is the point of view of accounting practice and the majority of academic authors. But this is not to say that the opposition does not have a reasonable position; many fixed costs are unavoidable and thus may logically be considered costs of the time period rather than of the product. If we recognize that there is *some* justification for excluding fixed costs, then we are receptive to, at least, looking at the relative usefulness of the several possible procedures.

Three Choices — and Three "Incomes"

It will be assumed that there are three choices available to the accountant maintaining the records of a manufacturing firm. The cost of product can be computed by:

1. Dividing the total costs incurred during the period by the number of units produced.
2. Using a standard overhead rate based on a predetermined level of activity (for example, normal activity or practical capacity) and considering any idle capacity variance as a cost of the period. To distribute the variance to product would make this procedure the

equivalent of the first procedure. To have the variance by-pass the income statement would solve several difficulties with this procedure, but the cure would be much worse than the ills.

3. Including only variable costs as a cost of product, fixed costs being considered as expenses of the time period.

All three procedures would give the same results if the plant sold within every period all of the product it produced. The classification of the items carried to the income statement would differ, but the net income resulting would be the same. However, these are obviously unrealistic assumptions, for some of the product produced will not be sold and the problem is made even more complex by the fact that production, as well as the amount produced and not sold, will change from period to period.

The first procedure suggested above will result in the incomes of successive periods being affected by the changes in production and the changes in inventory. With the second procedure, income will be affected by changes in production. Using a predetermined overhead rate based on normal activity, it is possible to show an income with zero or near zero sales (if the overhead is over-absorbed to product, the activity variance is favorable and this reduces the expense and increases the income of the period). Unlike the first two procedures, direct costing results in income undistorted either by changes in production or changes in inventory. This occurs because fixed costs are considered expenses of the period.

Absorption and Direct Costing — A Weakness in Each Concept

There is no question that accounting theoreticians do not intend to have income a function of production or the level of inventory which is carried (especially where the higher the inventory the higher the resulting income). Revenue is not recognized when production takes place, except in special cases where the sale is certain and the production period long. Generally, a completed legal sale is necessary to justify the recognition of revenue, since the revenue is only then considered to be realized. It is paradoxical that the accountant, who is so careful about the timing of revenue recognition (and rightly so), allows the income to be distorted by the inclusion of fixed manufacturing overhead in cost of product. If fixed costs are included in inventory, following conventional accounting procedure, then the income will be affected by changes in inventory and changes in production, as well as by the level of sales and efficiency.

If this is acceptable accounting theory, let us acknowledge it as a fact and state the explanation. Are the opponents of direct costing arguing in favor of

recognizing revenue at the time of production? Or is revenue to be unaffected, but income is to be affected by changes in production? Is this an acceptable and logical addition to the theory of income?

What would be the effect of using direct costing for financial reporting? As has been already explained, income would not be distorted by changes in production and inventory. The inventory presented in the position statement would include only variable costs. The advantage of this procedure is that, assuming no price changes, the inventory reported in the position statement would reflect changes in the physical units on hand rather than fluctuations in the cost per unit caused by variations in the level of production which would happen if the cost per unit was determined using actual costs divided by actual production, or where the activity variance was distributed back to inventory and cost of product sold. The disadvantage of direct costing for financial reporting is that inventories are recorded at less than full cost.

A Possible Solution

We have discussed the paradoxical situation in which the logically correct method of inventory presentation results in distorted income measurement. Efforts to eliminate the distortions to income using direct costing result in an understatement of inventory. The following solution attempts to correct both of these major problems, substituting in their stead a relatively minor difficulty.

It is suggested that income be measured following an accounting procedure where all fixed costs are considered expenses of the time period. Thus the fluctuations in income caused by changes in production and inventory are eliminated.

To avoid the understatement of inventory, the unwanted by-product of a direct costing procedure, the inventory can be presented at full cost, using one of the relatively sound methods of absorbing overhead to product. The fixed overhead in the inventory of the present period can be compared to the amount of fixed overhead in the inventory of the previous period, and the change recorded to the retained earnings account. The change in fixed costs in inventory at the end of the present period will appear in the reconciliation of retained earnings, but will not affect the reported income of the period.

Possible objections to the suggested procedure are that it makes use of the retained earnings reconciliation to adjust the amount of fixed costs remaining in inventory and considers the fixed costs an asset after they have been expensed. Against these objections must be balanced the improved measures of income compared with generally accepted accounting procedures, the improved valua-

tion of inventories and presentation of financial position compared to direct costing. The following illustration is designed to show the suggested procedure and also to compare the results from the suggested procedure with conventional accounting and direct costing:

The ABC Company produces one product. The budgeted and actual fixed manufacturing costs of each year are $10,000. The standard and actual variable manufacturing costs are two dollars per unit. The company has a normal capacity of 10,000 units and uses normal capacity to absorb fixed overhead to product (the fixed overhead rate is one dollar per unit). Assume zero work-in-process inventories.

At the beginning of 1957 the company has the following position statement:

Other assets	40,000	Capital stock	20,000
Finished goods	—	Retained earnings	20,000
	40,000		40,000

During 1957 the company finished 10,000 units of product and sold 4,000 units for $3.10 per unit. During 1958 the company finished 2,000 units and sold 4,000 units. Assume the only expenses are costs of manufacturing. Following the suggested procedure, the following reports could be prepared:

INCOME STATEMENT

		1957		1958
Sales revenues (4,000 x $3.10)		12,400		12,400
Manufacturing costs				
Variable costs (4,000 x $2)	8,000		8,000	
Fixed costs	10,000	18,000	10,000	18,000
Operating loss		($5,600)		($5,600)

RETAINED EARNINGS RECONCILIATION

	Dec. 31 1957	Dec. 31 1958
Retained earnings, January[1]	$20,000	$20,400
less: Operating loss for the year	5,600	5,600
	14,400	14,800
plus: Adjustment for changes in the amount of fixed costs in inventory[1]	6,000	(2,000[2])
Retained earnings, December 31	$20,400	$12,800

[1] The fixed costs are charged to expense in the period in which they are incurred to avoid distortions in the measurement of income caused by changes in inventory. However, generally accepted accounting principles properly consider the cost of manufactured goods to in-include a pro-rata share of the fixed manufacturing costs incurred. Thus the inventory and retained earnings are adjusted for the amount of fixed costs considered to be associated with the goods in inventory.

[2] An accounting entry would be required, decreasing the inventory by $2,000 and decreasing the retained earnings—adjustment account:

Retained earnings-adjustment for amount of fixed costs in inventory.....	2,000	
Finished goods		2,000

POSITION STATEMENT

	Dec. 31 1957	Dec. 31 1958		Dec. 31 1957	Dec. 31 1958
Other assets	22,400	20,800	Capital stock....	20,000	20,000
Finished goods ..	18,000	12,000	Retained earnings	20,400	12,800
	40,400	32,800		40,400	32,800

This procedure accomplishes several goals. The inventory is stated at full cost, thus satisfying those concerned with the omission of fixed costs from inventory that results from using direct costing. On the other hand, the incomes of the two periods are equal, as they should be for two accounting periods for which the revenues were equal, the total number of units sold the same, and there were no changes in efficiency. Following the conventional direct costing procedure, the income statements would be exactly the same as above, but the inventories would be presented including only variable costs. The income statements using generally accepted absorption accounting would be as follows:

INCOME STATEMENTS
(using absorption accounting)

	1957	1958
Revenues	12,400	12,400
Manufacturing costs		
Standard cost of product.....	12,000	12,000
Activity variance-loss	.....	8,000
Total expenses	12,000	20,000
Net income (loss)	$ 400	($7,600)

Generally accepted accounting procedures lead to the interesting (though misleading) conclusion that there is an income of $400 in one year and a loss in the other, when the only difference between the two years is the level of production.

Conclusions

Some accountants have reacted disapprovingly to the suggestion that direct costing be allowed for financial reporting as if the very basis of double-entry bookkeeping was being challenged. Present day accounting is not based on full cost absorption accounting. Absorption of fixed costs to product is logical but it inevitably results in a joint cost situation. One problem is to separate the cost of product and the cost of idleness as the use of the production facilities fluctuates. But even if the joint costs could be separated, there would still exist the fact that the income is affected by the level of production activity. A possible solution is offered which removes the distortion from the measurement of income (essentially a direct costing procedure), but retains a full cost basis of inventory presentation.

Maintenance Cost Reporting for All Levels of Management

by ARTHUR R. RAMIREZ

IT IS DIFFICULT to design controls to cover the number of jobs, and of variables within jobs, which are inherently part of maintenance work. For many years industry generally neglected maintenance cost controls. This is attested to by the large volume of time study work completed for operations or production jobs compared with the small amount of this type of work for maintenance functions. However, this situation has changed within the last decade or so. Among the causes for this change have been two which can be pinpointed: (1) the natural development toward more automated equipment, bringing about more expensive labor due to the need of greater technology and more expensive repair costs due to the intricacy of equipment; (2) increasingly competitive industry, causing management to scrutinize all costs and to attempt to reduce them as much as possible. This new cost consciousness in maintenance has brought about a rather general change in emphasis and has created many new concepts, systems, and new terms, such as "engineered maintenance." It has brought the fields of time study and work sampling into maintenance. The new concepts and improvements have rejuvenated what was once the "step-child" of industry.

All systems have generally similar control points. The difference lies in the amount of emphasis placed on the various control points and on their adaptation by each company to its own use. The Armed Forces, with their great expenditures for maintenance, have taken a lead in this movement toward engineered maintenance.

Control Points to Be Covered by Reporting

There are ten main control points in maintenance practices which form the core of any program:

1. A maintenance control group—to perform maintenance cost control as well as summarization and analysis of maintenance cost

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information. This should be a staff function as opposed to a line organization.

2. A work order or repair order system—to render a written contract to do the work and to serve as a basis for equipment records, job analysis, work scheduling, and work measurement.
3. Equipment repair records—to provide permanent recording of maintenance cost performed on equipment and to form a basis for more realistic justification of equipment replacement.
4. Job planning and analysis—to provide direction for and appraisal of effort. In some cases the field foreman performs this work, while in others it is the responsibility of the maintenance control group.
5. Daily schedule—to outline the work for the day. This schedule is prepared for the foreman the day before the work is to be accomplished. In this way, there is no waiting the next morning for work assignments.
6. Manpower and material controls—to consider the backlog, and the size of crews, and to control manpower according to need. This indirectly controls and saves material costs.
7. Preventive maintenance programs—to plan maintenance work to be done. To plan to do it in the most economical manner and at the optimum time, rather than on an emergency basis.
8. Maintenance standards—to ensure the most effective use of tools and manpower. But setting this type of standard for repetitive jobs, one can allow for an operation to be based on verified facts rather than custom or habit.
9. Analysis of performance and costs—to pin-point areas of high cost to show where performance or equipment needs improvement.
10. Budgetary controls—to provide a reasonable annual maintenance budget which can be broken down by months or weeks, by areas or products, to serve as a guide or basis for comparison and to establish the level of maintenance expenditures.

There are many other control points which could be mentioned; however, these ten may be considered basic. In our particular situation we have found one more control or function to be necessary, although it may not be universally applicable. That is some sort of data processing equipment—be it tabulating or small, medium, or large computers. It is not universally applicable since the need is proportionate to the size of the plant or the amount of work performed and the volume of data to be accumulated. At our plant, we have found data processing equipment vital, since we are talking about approxi-

mately 1,500 work orders per month covering approximately 450 pieces of coded equipment. Some types of work involve as many as five different crafts. The job of analyzing our data manually would be too time-consuming and expensive. Actually, in some ways, we are at the point where our tabulating equipment and two small 120 Univac computers are limiting our ability to further improve reporting of maintenance statistical data.

Attention is centered in this paper around four of the control points. These are of major interest to accountants:

1. Manpower and material control
2. Budgetary control
3. Equipment repair records
4. Maintenance standards

Along with consideration of control points, other matters of interest are brought out through reviewing selected reports used by our plant to cover these controls.

Providing Types of Information Needed

Our maintenance cost reporting has the following purposes in mind:

1. We wanted to design reports that would run the gantlet of the shift of interest of the different levels of management and also bridge the gap between manpower control and accounting control.
2. In the belief that true cost control starts with the first line of management—the foreman and planner—we also designed reports that would be suitable for their interpretation and would bring about a cost consciousness at the first control level.
3. Our third goal was to design reports that would effectively reveal the facts to the analyst and accumulate data that would pin-point our problem areas and provide an avenue for studies to improve them.

The shift of management interests from level to level is important enough to warrant more explanation. Normally, the field foreman is mainly interested in control of men by crafts, by work order, or by plant area of responsibility. As the level of management goes upward, the interest becomes a merging of men into a mass of manpower, and from that into payroll dollars and on into cost of product. In maintenance cost reporting, this shift in emphasis is expressed by a change from the production and technical type of information to the business and financial type. Exhibit 1 attempts to picture these shifts.

Maintenance reports are divided into two classifications:

1. Control reports, which serve as control by comparing actual to goals, standards, or budget figures.
2. Analytical reports, which accumulate data for the revision of present goals and standards or the setting up of new ones.

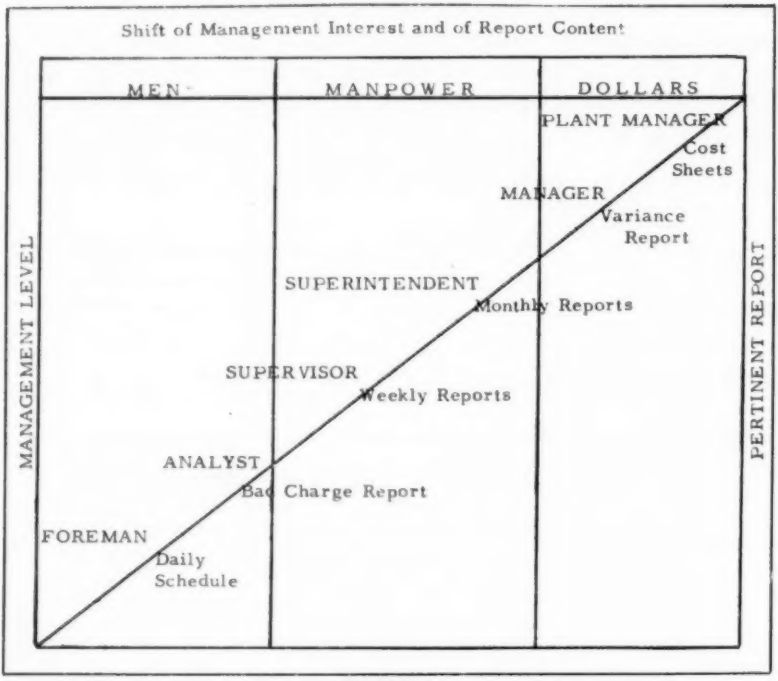

EXHIBIT 1

Control Reports

Some control reports are issued on a daily basis; others are issued weekly or monthly. In the examples which follow, a few imaginary figures are used to suggest the form and content of the actual reports.

Daily schedule sheet is made out by the maintenance planner on a daily basis. The following headings and typical line of digits indicate its form and contents:

DAILY SCHEDULE SHEET

Cost center	*Work order no.*	*Priority*	*Description*	*Craft*	*Man-hours Men*	*Est.*	*Act.*	*Remarks*
202	3-231106	3		18	1	8		

Daily schedule sheet serves as our first control report and is put on each foreman's desk every morning prior to his arrival at work. It tells him which jobs he is going to work on that day, the cost centers involved (they usually apply to a building or operating unit), the priority or order in which he is to work the jobs, the crafts, and the estimated man-hours for each craft. At the end of the day, the field foreman reports his actual manpower utilization by craft to each job and also has space to include any pertinent remarks.

In the development of the work order and equipment cost codes, we have attempted to make every digit a meaningful one, to make interpretation by personnel possible, so that we do not have to use description in our reports. Work order digits have significance as follows: The prefix 3 indicates an expense or maintenance work order as compared with 1 and 2, indicating a capital or project work order. The first and second digits indicate the area of the plant in which the work is to be done and the planner who estimated and processed the work order; the third and fourth digits show the week of the year in which the work order was issued; and the remaining two digits stand for the sequence of issue of the work order or the work order number proper. Thus, for example, Work Order Number 3-231106 means that this is the sixth work order, issued during the eleventh week, by planner Jones, in the TEL area of the plant, for maintenance work.

Daily bad charge report. Upon receipt of the daily time cards from the field foremen, each is key-punched and then matched with the active work order master cards. Any card not matched is included in the bad charge report, which contains the pertinent data as illustrated:

DAILY BAD CHARGE REPORT

Payroll number	*Badge number*	*Craft*	*Work order no.*	*Cost center*	*Hours*	*Dollars*
5	2463	18	3-234001	202	4	12.00

The payroll number tells us whether the craftsman is in the construction group or the maintenance group; the badge number indicates the individual whose card is wrong, and the craft, work order no. and cost center involved, any one of which may be in error, as well as the hours and dollars involved in the wrong charge. This report is issued every morning to the planning group, whose function is to find the correct charges, make the corrections on the report, and return one copy to the tabulating section. The corrections are included in the daily pricing runs of the section.

Weekly manpower report. Two reports covering labor utilization are issued

at the week end. Actually, they could be incorporated into one through the use of larger capacity data processing equipment. The headings and initial line of data on the forms are as follows:

WEEKLY MANPOWER REPORT

PART 1: SUMMARIZED BY WORK ORDERS

Payroll number	*Craft*	*Work order no.*	*Cost center*	*Hours*	*Dollars*
5	18	3-234010	202	15	45.00

PART 2: SUMMARIZED BY COST CENTERS

Work order no.	*Cost center*	*Hours*	*Dollars*
3-234015	201	6	18.60

The first part of this report summarizes labor by craft within the work order providing us with total craft usage and the total work order costs for the week. It is issued to the planners as a check of current craft usage against their estimates. The second part of the report uses the work order summary cards and totals them by cost centers. It is issued to the field supervisors as a check of costs incurred against those cost centers for which they are responsible. This second report, together with the daily bad charge report, was our first effort in the establishment of one of our goals—to bring about a cost consciousness at the first level of manpower control.

Up to this point in our program, we have concerned ourselves with detail control and reporting on labor rather than materials. We have done this on the premise that if we can directly control our manpower, we are indirectly also controlling our material utilization and cost.

Weekly material report has essentially the same format as the one just discussed, except that it summarizes the material costs to the work order and cost center, rather than labor. It completes the picture of total costs to work orders and cost centers on a weekly basis. This report is also issued to the field foreman for his awareness of costs in those areas of his responsibilities. Its headings and initial line of data on the form are as follows:

WEEKLY MATERIAL REPORT

Description	*Work order no.*	*Cost center*	*Quantity*	*Dollars*
	3-234015	201	20 lb.	10.00

Monthly manpower report. Our maintenance organization is such that the specialty crafts and field forces are under one supervisor for each area. One of

Monthly Manpower Report

Control number	Type of charge	Cost center	Hours	Totals
1	1	205	15	45.00
1	3	205	12	39.60
2	1	205	20	75.00
2	3	205	30	110.00
			77ST	269.60ST
1	1	206	14	49.00
1	3	206	22	69.00
			36ST	118.00ST

EXHIBIT 2

the main problems encountered in reporting manpower to this level of management was to break out that portion of personnel under their individual responsibility and to show the actual usage. Exhibit 2 shows how this was accomplished.

Labor is distributed to each area on a monthly basis. The control number shows the manpower utilization of each group or supervisory control by cost centers and designates field, shops, electrical and instruments, etc.

Our maintenance budget is also broken out by individual responsibilities and monthly standards. With the actuals reported in this report and the budget standards given to the head of each group, the over or under variance can readily be ascertained. We hope soon to program for inclusion of the standards into our data processing equipment and to change this report to show both figures as well as variances.

Monthly Variance Report

Cost Center	Description	Total Hours--Month Actual	Budget	Variance	Total Hours--Year to Date Actual	Budget	Variance
201		249	225	24	970	850	120
202		50	70	(20)	300	340	(40)
	Sub-total	1,240	1,110	130	5,860	5,600	260
	Services						
550	Instrument	237	260	(23)	795	760	35
551	Electrical	169	154	15	600	625	(25)
	Sub-total	1,460	1,400	60	7,245	7,120	125
	Grand Total	2,700	2,510	190	13,105	12,720	385
	% Variance			7.6			4.8

EXHIBIT 3

Monthly variance report (Exhibit 3). We have established normal routine work in the various areas under what we call "machine codes." These cost centers are "false" and known only to the reporting people. They cover essentially the so-called "services." Also established under these codes were standards from the budget. The report deals directly in man-hours and reflects actual utilization by work area, by cost center. The report is used by maintenance management and is linked directly to costs or dollars, though in terms

of man-hours. We also show year-to-date figures because this gives a picture of the long-range status. Many times the current month's costs may reflect a variance which is essentially unimportant when compared with the year-to-date figures.

Cost sheets are the true cost reports and reflect all costs, as well as those factors going into factory cost. We are now away from the area of maintenance as such and into the accounting side of it. All our previous build-up of monthly costs is reflected in two lines of this report: repair labor and repair material. Our machine codes of the previous report have been prorated back into real cost centers on ratios established by experience, and have disappeared. Now the real interest is in dollars, not manpower. One sheet (Exhibit 4) covers one cost center. For quick review purposes, summary sheets are also made a part of the report, showing total costs by areas or groups of like manufacturing cost centers.

Monthly Cost Sheet

Material	Actual			Standard		Variance
	Quantity	Price	Amount	Quantity	Amount	
Net material cost						
Operating labor						
Repair labor						
Supervision						
Repair material						
Operating supplies						
Insurance						
Depreciation						
Taxes						
Power						
Total factory cost						
Total cost						

EXHIBIT 4

Monthly closed work order cost report gives us the final history of the work order. Issued monthly, it covers those work orders closed or completed during that month with final cost figures. It also provides comparisons with the estimates and indicates (1) percent of variance for estimated labor hours versus actual hours and (2) percent of estimated total dollars versus actual. The headings and initial line of this report are as follows:

MONTHLY CLOSED WORK ORDER COST REPORT

Estimated cost			*Work*	*Cost*	*Equip.*	*% Variance*		*Actual cost*			
Hr.	*Labor*	*Material*	*order no.*	*cen.*	*number*	*Hr.*	*Total*	*Hr.*	*Labor*	*Material*	*Total*
212	636.00	290.00	3-250905	206	5040	107	124	227	778.62	318.43	1,151.78

It serves two purposes: provides the planner with a check of his labor estimating efficiency and provides the auditor with a tool to check the approval signature authorizing the work order. We have a rule that certain levels of management can approve up to certain amounts of expenditures. The report serves as a check against the abuse of this rule.

After reviewing these reports and their contents, one may refer again to Exhibit 1 and better understand where they fit the picture. Notice how we have met what we call the shift of interest. As the level of management goes up, the report changes sufficiently to meet that interest. From individual craft by work order, the theme blends into manpower, into dollars, and finally in the end cost report, cost of product.

Analytical Reports

Three analytical reports are prepared monthly by the tabulating section.

The active work order report shows the activity and cost to date on active work orders which have not been completed. It has the same format as the monthly closed work order report.

The equipment cost history consists of two monthly reports based on our equipment code and reflecting costs against equipment in two manners. The first simply summarizes all monthly costs against each equipment code, regardless of area or cost center. It provides us with the work order number and the labor and material costs. This report is presently being used for analyses and correlations of manpower usage versus material, manpower versus total costs, and to show what type of equipment causes greater expenditures from month to month. The headings and initial line of data on its form are as follows:

EQUIPMENT COST HISTORY

Equip. Code	*Cost center*	*Work-order no.*	*Labor*	*Material*	*Total*
2270	213	2-220816	149.69	20.00	169.69

The equipment cost by cost center is issued on the same form as equipment cost history. It presents equipment costs by code within each cost center. This report, issued to field foremen, provides a ready comparison of maintenance of equipment in various areas under varying conditions or of like equipment in different buildings operating under different conditions. One other report, showing the backlog of work, is kept up to date manually by the analysis group. This report is accumulated by craft, by area, so that at any time the amount of work to be done can be determined, and in any combination desired.

Looking Forward to Maintenance Standards

In the records and reports described, we have completed the foundation for an improved system of maintenance cost control reporting. However, we feel that the keystone in our structure is yet to come. As a result of our equipment history and cost reports, our industrial engineering group is now in the midst of analyzing and studying our repetitive jobs. From preliminary results, it appears that, without too much time expenditure, from this historical data coupled with work sampling studies to provide certain factors to modify our results, we will be able to set manpower utilization standards on most of our work.

We are studying the possibility of setting up a more realistic maintenance budget through the use of standards. By developing equipment cost standards, we can add the needed repairs within a cost center and set the cost center level of maintenance. By adding these incremental cost centers, we arrive at an area cost and from there a complete budget. Having these base points broken down in this fashion, it is relatively simple to program our tabulation equipment to compare actual cost against standards or against budget, thus providing the variances automatically without any manual analysis.

One further step would be to report to management only those variances that are over or under budget by more than a certain allowable percentage. This might be an effective management-by-exception practice. We have begun a study of what we call "maintenance yardsticks," which are a series of parameters that could be inserted in report form for our top management. These yardsticks could be used by all our plants, regardless of age and size, and would reflect the maintenance efficiency of each. Thus, in one quick review, the status of each plant could be compared with the others.

These "down-the-road" projects require long-range planning and study in themselves. They do bring out one very important conclusion. There will always exist a need for continued follow-up and audit of systems as well as improvements to established practices. Because maintenance is continually changing through process and equipment improvements, it has become more important to management. Management of maintenance in itself is a difficult job. The practice of engineered maintenance is relatively new but promises a great potential.

The Road to Better Collegiate Education for Accounting

by WILLIAM C. FLEWELLEN, JR.

THE PRACTICING MEMBERS of the accounting profession, both industrial and public, have a tremendous stake in collegiate education for accounting and in its continuing development. Collegiate education has been accepted by them as a requisite for accountants. While gaining this acceptance, it has been making rapid strides forward. These facts have resulted in a need for better communication between business and education—in a need for better understanding of each by the other. Much of the future of accounting hangs upon the preparation of our youth for the trying responsibilities that lie ahead. The members of the profession need to know about collegiate education for accounting—what educators are trying to do, how they are going about it, what their problems are and what part the practicing professional can play in solving them.

Educators need to have the practicing accountants hear about education for accounting. Collegiate education for accounting depends upon them for its life. They buy the product of the process—education. Further, present day emphasis on scientific education should not be permitted to de-emphasize the important place that education for accounting has and will continue to have in our nation's economic life.

What Educators Are Trying to Do

What are the objectives? Educators, college presidents, deans and professors, define them daily. Businessmen daily describe the graduate that is desired. These definitions often bear little resemblance to each other; however, there is a hard core common to them all. It is partly reflected in development of accounting education to date. More specifically, collegiate education for accounting has provided a course of study that will develop knowledge in three areas:

1. *Technical background*—strong in fundamentals and basic principles, plus ability to express one's self.

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2. *Business background*—a solid foundation in business areas other than accounting.
3. *Broad, cultural training*—a background in the liberal arts.

These three areas of study provide the means for imparting truths, for communicating professional attitudes, as well as for developing abilities to analyze, to decide, and to deal with people.

Evolution of Curricula and Standards Established

Education for accounting is, today, a part of education for business and must be considered in that context. Collegiate schools of business are relatively new. There were only four collegiate schools of business in existence at the opening of this century and they had made no great impact upon American life. The schools of business are really a twentieth century development.

Rapid development of the schools of business was guided and diverted into its present channels by the American Association of Collegiate Schools of Business, an organization established in the early 1900's. The approximately ninety member schools comprise today the elite of the four or five hundred institutions that hold themselves out to the public as offering courses in business. Schools become members only after careful examination of physical facilities, faculty, student body and administration. This accreditation by membership is the best protection for parents, prospective students and employers. To the non-member schools, membership becomes a goal and the standards a guide.

Most of the earlier schools of business started with little more than a general idea of curriculum to be offered.

However, a fairly definite curriculum did evolve. When the A.A.C.S.B. required that all members instruct each student in accounting, business law, business statistics, economics, finance, management and marketing, most of the member schools were doing just that. This requirement became the framework on which the broad business background of a modern curriculum was fastened. Every student, whether he majors in accounting or some other specialty, must take courses in these seven areas. The importance of training in these varied areas and the need of the accountant to be conversant in them need not be emphasized today.

The schools have generally added two more areas to those required. These are business mathematics and written expression. Most schools require courses in algebra and business mathematics and in English and written expression. The English courses are ones in which accountants have an especial interest. They generally cover two semesters of composition, one of business correspondence

and one of report writing. Many schools are giving consideration to additional courses in this important area. These business background courses comprise roughly one-third of the student's four-year program.

To provide for another of our three objectives, broad cultural training, the A.A.C.S.B. has required that forty percent of the program shall consist of non-business courses. Algebra and English composition are generally required, as is literature and often American government. The remaining approximately eleven courses in this group are left to the choice of the student and provide opportunity for obtaining more of the broad cultural background provided by liberal arts courses. The liberal arts, cultural type courses comprise roughly one-third of the program.

The remaining third of the program is reserved for specialization. The accounting major begins his accounting early with two courses in elementary accounting. He is generally required to take additional intermediate courses in theory and problems, advanced theory courses, a cost course and one in auditing. He has several additional courses to choose. He can take courses selected from those in tax, advanced cost, advanced auditing, electronic data processing, machine accounting, systems, controllership, business law, corporation finance and many others. These courses are oriented toward both theory and techniques, with major emphasis on broad principles.

Thus the student's time is divided to meet our three objectives of broad cultural training, business background, and technical background. But what of our other objectives? Can the college develop ability to work with people, to size up problems, to accept responsibility, to think with imagination? Although specific courses may not be able to develop these things, colleges can make a contribution here, too. The methods used in teaching, the demands made on the students, the standards established and the extra-curricular activities provided may be of such calibre that much can be done toward realizing these objectives. It is here that quality of faculty and staff assumes major importance. A balanced curriculum taught by quality faculty with high standards and the interest of the student at heart are the means by which the obligations imposed by the objectives are met.

Two of the Problems; Staffing and Practical Background

A review of the problems that collegiate education for accounting is facing today is necessarily selective. Several are the subject of much discussion when educators meet.

The staffing of faculties with quality personnel has become a problem because

of the increase in numbers of young men and women seeking collegiate education for accounting. Studies indicate that the number of properly prepared faculty members available during the next decade will be insufficient to maintain present standards. Practicing accountants may assist education by encouraging young men to choose teaching as a career if they have talents along these lines. They can refrain from overt raids on the ranks of educators in their search for personnel. They can also support education in its legitimate demands for funds.

A second problem is the need for practical background for faculty. Donald P. Perry in his Dickinson Lectures in 1955 at the Harvard Business School emphasized this need. He said:

> "Surveys of schools have emphasized a crying need for more instructors who can stimulate and arouse students both by their teaching ability and also by their breadth of practical experience and contact with the business world."

Practical background includes not only knowledge of techniques but also understanding of the business attitude, of the competitive search for profit. It is difficult, if not impossible, to get this from books. The young faculty member has been in school for nineteen years or more. He has done some part-time accounting, mostly of a public accounting nature; he has visited plants and talked with accountants; he has attended professional meetings, yet his practical background is limited. Industry and public accounting can be of great service here. They can assist by making more case material available. Summer work and faculty fellowships can provide additional needed training and bring more realism into the classroom. These things take time and money but would pay big returns.

Problems are presented, especially with regard to summer work. It is difficult to assimilate an employee of this type. Professors are often thought to be temperamental. The actual skill level of a doctor of philosophy may not be commensurate with his theoretical knowledge. However, these problems are no more difficult of solution than are problems solved daily in any industrial firm. Practical experience provided by summer work and faculty fellowships give teachers an overall knowledge of business operations, buttressed by a more detailed insight into the problems of the practicing accountant. The teacher is refreshed by the competitive spirit of business enterprise operating in the freedom of the capitalistic system. He acquires first-hand impression and information as to current developments in the operations of progressive business firms, and classroom presentations become more effective through introduction of practical insights as supplements to theory. Students gain a more realistic appreciation

of the problems involved in accounting for an industrial firm and of the methods of solving them.

Industry benefits through employment of graduates who are better prepared. Their understanding and appreciation of managerial philosophy will be more realistic. More immediately, the faculty fellow is in a unique position to evaluate and advise with respect to the firm's staff training program.

As a result, the school will find itself in a position to provide more useful service for the industrial and business community through better understanding of its problems. The relationship between education and business will be improved. This type of program has the potentiality of developing into one of the best means of improving instruction in accounting and of promoting cooperation and understanding between education and industry.

Public Accounting Bias; A Better Balance Is Needed

A third problem, one that has been raised by industrial accountants, is the public accounting bias that is said to exist in collegiate education for accounting. The bias is there, to a certain extent. It has been built into the system. When the teacher looks for part-time work to gain experience and supplement his income, he invariably finds that the work available is of a public accounting nature. He finds that the C.P.A. certificate is accepted as a terminal degree if coupled with a master's degree. He finds an active and encouraging interest in collegiate education on the part of the organizations of the public accounting profession. He reads pamphlets and views and shows films presenting the advantages of public accounting as a career and a profession. These films and pamphlets are provided by public accounting organizations. The Accoutant's Index for 1955 and 1956 contains 112 articles on education and accounting. Of these, only ten are industrially oriented. The public accounting profession is to be praised and encouraged for its enthusiastic interest. Educators welcome and seek it, but a better balance may be needed.

The same means that can improve instruction would do much to achieve the better balance. But more must be done. Industrial accountants should become sufficiently interested in education to acquaint themselves with what is going on and let the colleges and high schools know of their interest. Films, pamphlets, scholarships can be developed. Close cooperation with nearby colleges on the presentation of discussion forum programs may be sought. The possibility of a certified accountant or certified industrial accountant certificate program, one that will parallel the C.P.A. program preparation, should not be discarded without a thought. The problems to be surmounted do not appear to be too difficult of solution. Most of all, education can benefit from careful considera-

tion of these problems and by cooperation and interest in their best solution. Without the help of the industrial accountants, a more realistic balance between public and industrial accounting is not likely to be achieved in the colleges.

The General vs. the Specific in Educational Programs

Today there is much discussion of the value of the general education versus the specific. The curriculum of schools of business has developed to give some balance in this regard. However, thinking in this area has taken two other definite trends. Many accounting educators and business men have called for a five-year program in accounting. The thinking of others has led to advocacy of professional schools of accounting.

Thinking has not "jelled." However, more than one school of business has already embarked upon a five-year program. The University of Houston has a five-year program leading to a Bachelor of Accountancy degree. This program is essentially that required for a master's degree, yet it appears that the high standard "B" average work established for the master's candidate is not required. A few schools grant degrees in accountancy rather than degrees in business administration with majors in accounting. The University of Illinois has established a Master of Accounting Science degree. The student chooses one of three options—public, industrial, or governmental.

Among accounting faculties, advocates may be found for any combination of years of general and specialized training: four and one, one and four, three and two, and two and three. Others prefer the present balancing of the general and specific within the four-year program with additional specialization available at the master's level.

The other line of thinking, the professional school of accounting, is by no means new.[1] It was brought to the forefront of accounting's educational problems by the publication in 1956, of *Standards of Education and Experience for C.P.A.'s* by the Commission on Standards of Education and Experience for Certified Public Accountants. This report gave tremendous impetus to consideration of professional schools by its emphasis on education and its constructive criticism of programs now in effect.

The professional school of accounting would serve the accounting profession as schools of law and medicine serve their professions. Again, thinking has not "jelled." Educators do not appear ready to propose a three-year pre-accounting program and a three-year accounting program that would parallel the programs

[1] Sterrett, J. E., "Education and Training of a Certified Public Accountant," *Journal of Accountancy*, November, 1905.

of schools of law. They do not advocate an educational program as ambitious as that of the medical profession. They are, as yet, undecided as to the exact nature of the program that a professional school of accounting should offer. It must provide for balance of technical, business, and cultural training. It will probably include an internship, and cover a period of five or more years. More specifics than these have not been indicated.

Advocates of the professional school say that prestige of the profession will be increased, that there will be greater opportunity for development of special programs of study peculiar to the various phases of accounting, that internships can be developed and that the accounting profession can exert better control over the program. Others point out that these objectives can be accomplished within the present educational framework, with the possible exception of the prestige objective. They fear that cost to the student will be increased to an extent not justified by results, that the gap between business and accounting may be widened, that there may be excessive concentration in accounting subjects and a greater bias toward public accounting. Many say that the best finishing school is out on the firing line and that four years of preparation is sufficient. Last but not least, some fear that education for business will be fractionized and destroyed, that the future business executive will cease to leave the colleges, having been replaced by a too narrowly trained specialist.

No conclusions have been reached yet. The topic will be given much additional attention. Much more thought and study must be given to the problem of balancing the general and specific, to the time young men and women should be asked to spend in college, to the best way to give students background for top management positions, to the best approach to the preparation of the students for careers in accounting. Industrial accountants and their national accounting organizations should review these points and give their constructive suggestions to educators as to what would be best for industry.

Attracting Accounting Majors

Today's struggle among professional groups, business organizations, scientific groups and even educational institutions to attract the outstanding young men of the nation is unlike anything that has occurred in the past. The prospective students are being constantly flooded with masses of data concerning the need for scientists and engineers. They are almost led to believe that it is unpatriotic not to follow one of these professional pursuits. Awards of all kinds are always available for those top ranking high school students who plan to follow the paths of science, medicine or engineering.

. C. Aubrey Smith, Professor of Accounting, University of Texas, has given us a few statistics obtained from the University of Texas Testing and Guidance Bureau.[2] In answer to the question, "What is your occupational goal?", only 2.1 percent of the respondents indicated that they were contemplating accounting as a program of study and presumably a career. Seventy percent of the Texas students who eventually chose accounting as their major field of study ranked first as reason for their choice the fact that they did well in first year accounting courses. Many others took accounting merely as training for general business management careers. These made their selection of a career after a very small sip of education, apparently not having been impressed with accounting prior to that time.

The Texas statistics showed that students expecting to take an engineering program led the list with 20.4 percent, almost ten times that of accounting. Combining engineers with those expecting to make a living in the natural sciences (4.4 percent) it appeared that one quarter of all of the young men entering college expected, at entrance, to follow engineering and the sciences routes. Among the other twenty-four occupational goals, 5 percent of the students tested expected to follow law and 9 percent medicine and dentistry.

What about quality? The Texas tests indicated that the median for the group tested was 83. Those intending to pursue accounting came up with a median of 75. Prospective lawyers had a median score of 85, engineers 86, journalists and doctors 87, and natural scientists 95.

What should be done to get the quantity and quality needed? One of the many things that can be done is for industrial accountants and their national accounting association to encourage outstanding youngsters to consider accounting as a career, through participation in high school vocational programs and articles on accounting as a career.

The Responsibility of Accountants

The industrial and public accountants are aware of most of the problems posed by the collegiate training of their future employees. To obtain the best possible employee and colleague, they must give collegiate education for accounting their informed, aggressive, and enthusiastic interest. This will require individual thought and study and the support of all of the accounting profession's national organizations. Without these, collegiate education will stagnate. With them, collegiate education, which in half a century has grown through adolescence to manhood, will reach its fullest powers of maturity.

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[2] Smith, C. Aubrey, "Adequate Talent and Professional Training—A Challenge," *The Texas CPA*, September, 1958, p. 5.

Using Return on Capital Employed as a Yardstick for Appraisal

by H. R. LAMMIE

THERE IS PROBABLY general agreement that the final measurement of profitability over the long term is the relationship of profits to the capital required to produce them, i.e. return on capital employed. This is the basis on which investors and creditors rely and it is somewhat surprising that many managements have only recently commenced using the concept as an over-all basis of measurement of efficiency.

The Basic Formula's Application

Before proceeding, it might be well to define capital employed as well as the elements in the basic formula. If we accept the theory that all assets, regardless of their source, should be used with equal effectiveness and profitability, then we can agree that capital employed means the total assets used in operating the business. This would include working capital items plus permanent capital. We are not concerned with the source of these funds, but we are concerned with a means of measuring how well they are used in generating profits. Another question and a highly controversial one to be resolved is the basis for valuation of assets represented by capital employed. First of all, there are many different accounting policies followed by companies with respect to depreciation and costing, all of which are factors in comparing ratios between divisions and companies. Also, we have the effect of price level changes which stresses the need of adopting bases for calculations which will minimize those effects. In addition, there are two other considerations that should be given attention in arriving at the base. These are (1) its acceptibility to those who are going to use it, and (2) consistency of method.

With this background, let us review the basic formula — assuming, for the purpose of explaining the formula, that we are talking about a hypothetical company with capital employed of $250,000, sales of $500,000 and profits of $50,000:

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$$\frac{\text{Sales}}{\text{Capital employed}} = \text{Turnover} \qquad \frac{\$500{,}000}{\$250{,}000} = 2$$

$$\frac{\text{Profit}}{\text{Sales}} = \%\ \text{profit on sales} \qquad \frac{\$\ 50{,}000}{\$500{,}000} = 10\%$$

$$\text{Turnover} \times \%\ \text{profit on sales} = \text{Return on capital employed}$$
$$2 \times 10\% = 20\%$$

$$\frac{(\text{Sales})}{\text{Capital employed}} \times \frac{\text{Profit}}{(\text{Sales})} = \text{Return on capital employed}$$

or

$$\frac{\text{Profit}}{\text{Capital employed}} = \text{Return on capital employed} \qquad \frac{\$\ 50{,}000}{\$250{,}000} = \$20\%$$

One element of our formula is the relationship of capital employed to sales. Another element of our formula is the relationship of profit to sales. This element is used as a measuring factor by practically all companies but it does not tell the whole story and can, at times, be greatly misleading. Finally, the rate of turnover multiplied by percent of profit to sales equals the return on capital employed percent which, in our illustration, is two times ten percent, or twenty percent. It is apparent from the formula, as shown above, that there is a simpler way of calculating return on capital employed. If we can cancel sales, we can divide profit by capital employed and get the same answer. In this instance, $50,000 divided by $250,000 equals 20 percent.

If this is true, why should we concern ourselves with the complete formula? The answer is that the return on capital employed responds to any movement in the two major elements mentioned, and it is, therefore, important to analyze the relationship of capital to sales and the relationship of profit to sales. For example, if there has been no change in selling prices or investment, an improvement in turnover indicates that capital is being worked harder, that is, the business is getting additional sales volume out of the same plant and working capital. If there has been no change in selling prices, an improvement in the relationship of profit to sales would indicate that costs in proportion to the sales dollar are being reduced. The extent to which management can control these relationships determines to a large degree over-all corporate performance.

It Works Anywhere — If Used Objectively . . .

If your company is highly decentralized along product lines, and division officers are completely responsible for profitable management of their divisions, you can use the concept to its fullest potential. It can be used to measure performance of the company as a whole, of each division, of responsibilities within divisions and of each product or product line. On the other hand, if your company is highly centralized, you will probably approach the use of the concept in a different manner. You can still use it to measure performance of the company as a whole, and with, perhaps, some allocation difficulties, to measure performance of each product or product line, but you will probably wish to emphasize functional responsibilities to a greater extent. Instead of pin-pointing division management responsibility you will be pointing to responsibilities of the vice president of sales, the vice president of operations, etc.

It is somewhat basic to say that the use of the concept must be tailored to each company's situation and requirements. However, the important point is that, from an objective point of view, the concept can be beneficial under any given set of circumstances. Let us see what might be accomplished through comparison of elements affecting return on capital employed. Exhibit 1 shows the combinations of the two elements, profit margin and capital turnover, which must be achieved to result in an objective of twenty percent return on capital employed. As can be seen by the target line on the graph, on a turnover of one profit margin of twenty percent will be required to meet our objective. With a turnover of 2.5 a profit margin of eight percent will be required, etc. Let us now assume that the plottings on the graph are hypothetical divisions of XYZ company and that you are manager of Division A and I am manager of Division D. Let us also assume that our operations are very similar and that comparisons would be valid.

In the past you have been extremely unhappy because I have continually boasted about my profit margin which is 10.5%, compared to your 5%. Until recently, when our company adopted the return on capital employed concept, I was the favorite when it came to appropriations. Our principal measuring factor was profit margin on sales and my superior performance was always evident. However, when we started to analyze performance based on the capital employed concept, we saw a different picture. My turnover ratio is only 1.5 while yours is 2.5. Although my return (15.75%) is still greater than yours (12.5%) the differential is not nearly so great. In fact, neither of us is meeting the company's objective rate of return on capital employed of twenty percent. On the other hand, if I could improve my turnover position to equal yours and you

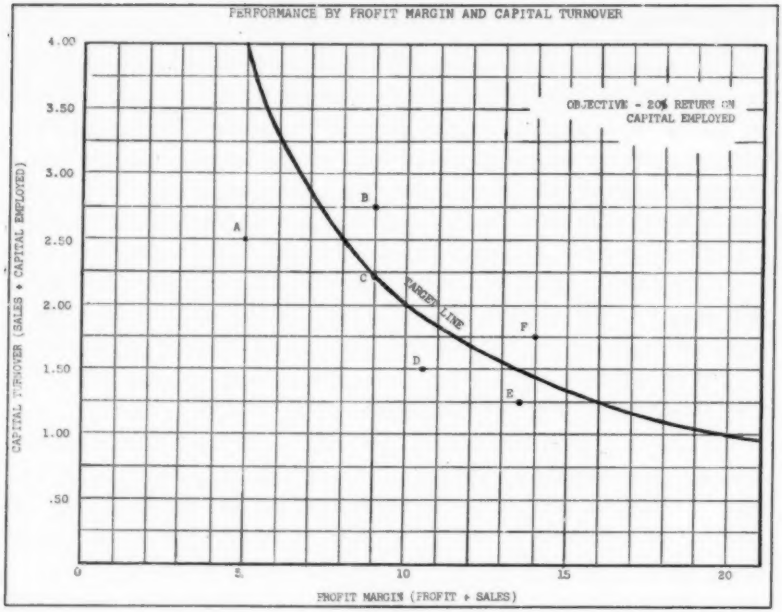

EXHIBIT 1

could achieve my profit margin position, we could both exceed the company objective.

In our planning for the coming year, this situation gives us a goal stated objectively and to some extent quantitatively. I can improve my position in two ways—increase my volume and minimize the capital required to maintain operations. My program to accomplish this will be aimed at two specific areas, sales effectiveness and inventory control. Based on your knowledge of Division A, you realize that your major emphasis should be placed on cost control in order to improve margin performance. At the same time, you intend to review your sales pattern to determine that proper emphasis is being given to product profitability and selective selling.

. . . *and in Perspective*

There have been many discussions and papers on the return concept in recent years which seem to imply that, here at last, is the concept which provides management with a magic yardstick for decision-making. As we have demonstrated in our analysis of Divisions A and D, the best the return concept can do as an

over-all yardstick for appraisal is to point out the area of weakness in keeping volume, profits, and capital employed in sound relationship. To attain objective improvements in any of the relationships requires careful specific plans of action. Let us examine what some of these plans might be. Exhibit 2 sets forth control plans classified under the "eternal triangle" of business—volume, profit margin, and capital employed. Obviously, all of the factors are interrelated and require close coordination among the sales, manufacturing, and financial divisions.

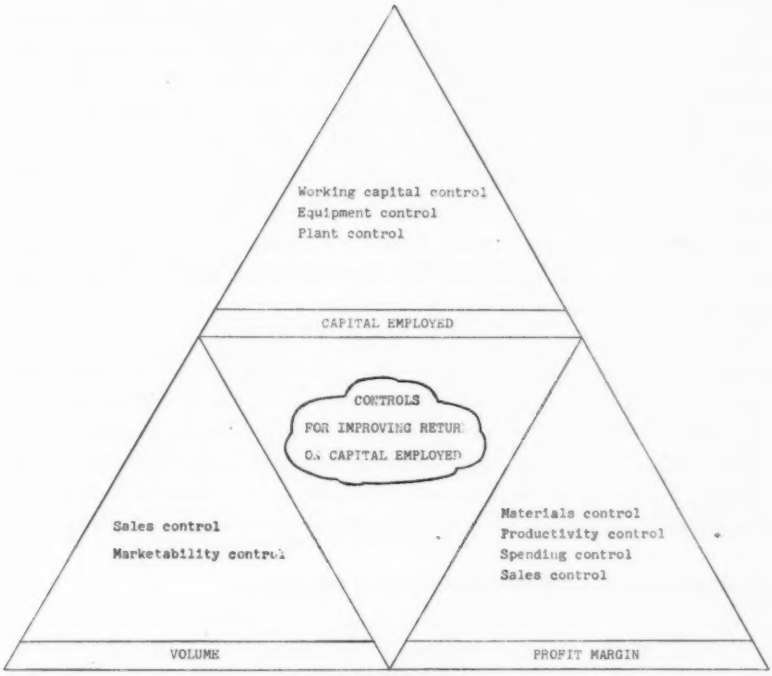

EXHIBIT 2

If *volume* is the area of weakness, a specific program should be developed to answer such questions as: Does a sales manager or a sales territory produce a satisfactory volume of sales in relation to potential? Does the sales organization have the proper incentive to be an effective sales force? Are the sales offices and/or warehouses properly located to serve our market? How effective are our advertising and promotion programs? Will improved quality or service increase our share of the industry?

If *profit margin* is the area of weakness, then we should answer such questions

as: What programs do we have to control material cost, productivity, and yield? Do we have labor standards and operating budgets to control operating costs? Are we emphasizing the sale of products which produce the greatest margin? Do we know what our material handling and distribution costs amount to and are they under control?

In the case of *capital employed,* do we have specific programs to control inventory investment? Are we scheduling and utilizing equipment and plant efficiently? Finally, are we constantly improving and revising our product mix because of market changes? Also, there are other less obvious means of improving capital turnover which are sometimes overlooked. For example, cash balances in banks and working funds should be followed closely to determine that excesses are fully employed and not standing idle. Sales, credit and collection policies should be reviewed in analyzing accounts receivable turnover. If sales forecasting is integrated with production planning, improvements in forecasting techniques might result in lower inventory requirements. In recent years, operations research programs using advanced mathematical techniques in analyzing order points, order quantities, and optimum manufacturing lot sizes have been successful in reducing inventory requirements.

It is not within the scope of this paper to discuss these control plans or programs, but I believe that Exhibit 2 covers the complete span of management control. It also brings into perspective the one over-all objective of management, i.e., to earn a satisfactory return on capital. This is perhaps the greatest potential value of using the concept. If all levels of management are fully aware of the company's objective rate of return and realize that all programs are to be directed towards attaining that objective, there is little room for misunderstanding.

Interrelationship with Other Control Systems

It can be readily seen that the use of the return on capital concept as a yardstick for appraisal is dependent upon education of management in its theory and application. This is not unlike the situation of a number of years ago when standard costs and budgets were viewed with an air of mystery and awe. It is fairly safe to say that today most company managements rely heavily on some form of standard cost or budget system. I believe the same will be true in the future with regard to the return on capital concept. Our first job is one of education. Management must understand and accept the concept as a valid basis of appraisal. All levels of management must be told of the company's objective and the inter-relationship of factors affecting the return. Without a complete understanding of this inter-relationship, the sales department might increase

volume by expanding its warehouse operations but reduce over-all earnings and return on capital employed because of increased costs and investments. Or the foreman might reduce cost at the sacrifice of quality, resulting in lost sales and poor customer relations. The entire organization must be educated in the over-all effect of its decisions. Before the return concept can be used effectively, the control plans indicated on Exhibit 2 should be an inherent part of managing the company's operations. In addition, there are some other major problems involved in preparing to use the concept. For example, in a multi-divisional company, divisional profit performance cannot be determined properly unless a satisfactory transfer pricing policy has been established. Another problem area is that of establishing what the objective return should be for the company as a whole as well as for its various segments. There is no doubt that the setting of any standard is better than none at all; however, if the objective is not realistic, the acceptance and enthusiasm of various levels of management will soon disappear.

Return on Capital Employed — A Company Program

The foregoing problems have been cited, to point out that the use of the concept is not a simple matter of computing a few ratios. On the other hand, all of the problems mentioned can be solved and, in many companies, have been solved. If your company has developed adequate control systems, only application of specific techniques stand in your way in using the return concept as a yardstick for appraisal. The techniques will vary from company to company and, therefore, a detailed discussion here would not be worth while. However, I will venture to suggest a general program:

1. Develop information and prepare return statements for the company as a whole.
2. Analyze return performance of competitors and other well-managed companies; to the extent possible in view of the difficulties in establishing bases which are similar.
3. Discuss findings with top management and establish company return objectives.
4. Commence using the return concept and return objectives in planning functions such as capital budgeting, profit budgeting, inventory planning, etc.
5. Commence using the return concept and return objectives in decision-making areas, such as make vs. buy, purchase vs. lease, pricing of products, etc.

6. Where applicable, analyze return performance of divisions.
7. Discuss findings with company and division management, and establish division return objectives.
8. Extend the use of the return-on-capital concept to analysis of return performance by product or product line.
9. Report trend data to management for the company as a whole and its segments, compared with objective rates of return.
10. Develop specific plans of action to attain objective improvements in bringing volume, profits, and capital employed into sound relationship.
11. Emphasize education of all levels of management and direct all programs toward attaining the objective rates of return.

This program, with modifications to suit particular situations, will result, I believe, in improved return performance and a new awareness of all levels of management in their responsibility for constant supervision of capital. Do not be impatient. Education and acceptance of the concept as an over-all yardstick for appraisal will take time. The sequence of the above program is designed to generate thinking in terms of return on capital, first, at the top management level and, secondly, at division or similar responsibility levels. Careful thought and planning must be given to establishing the principles governing the preparation of return data. If the principles are not completely acceptable, management's time will be devoted to attacking the validity of return data rather than improving the ratios. As previously stated, the objective rate of return established as the standard should be completely realistic, and all statements should be prepared showing the actual ratios compared to the standard.

For Both Planning and Appraisal

The return on capital concept as a yardstick for appraisal is, in my opinion, the best common denominator, thus far developed, to measure management's use of existing capital and to plan for the commitment of future capital to maximize profits. If the concept is used objectively and in conjunction with other control systems, it should provide an invaluable aid to management in attaining a satisfactory return on capital.

The Profit Path as Seen Through the Budgetary Control Program

by HENRY C. DOOFE

TO FOLLOW A DESCRIPTION of a budget with any sense if its reality or visualization of its effect, it is all but necessary for the reader to have a little background. American Machine and Metals, Inc. operates seven plants involving three major product lines. The oldest of these is a varied line of industrial machinery, which is produced at the Machinery Plant located at East Moline, Illinois. It is this entity with which this paper is concerned.

The Machinery Plant, under the overall direction of a vice president and general manager, is a highly diversified operation consisting of seven divisions. Filters and centrifugals for liquid-solid separation in the process industries, material testing equipment and related instrumentation, fans and blowers for industrial ventilation and fume removal, commercial laundry machinery, and synthetic fabrics for all industrial filter applications are the products of these divisions. Though the products are dissimilar in nature and end use, and require their own assembly areas within the plant, they have so many points of similarity as to material from which they are constructed and the manufacturing equipment and worker skills employed, that substantial manufacturing economies and organizational advantages accrue by making them all in the same plant.

Each of the seven divisions sells its own products and services under its divisional name. Distribution is primarily effected through salesmen and/or agents. None of these divisions enjoys a proprietary position; each business is highly competitive; therefore, a close control of all cost factors is essential. Supporting all of the sales divisions and the plant in general are such staff departments as accounting, budgeting, costing, billing, credit and collection. This diversity poses certain problems when preparing a coordinated overall budget plan.

Realistic Sales Forecast Provides a Sound Foundation

It is elementary that the first step in any budget program is the sales forecast.

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We might liken it to the cornerstone of a building. From this starting point, we project the remaining portions of the profit and loss statements, the cash position estimate, and all of our expense budgets. Accordingly, if a reasonably accurate estimate of sales can be made, a sound foundation is provided for the entire budget structure. Forecasts of sales should be as realistic as possible. Too often, however, sales forecasts, when developed by top executives, tend to be mere guesses or hunches, based on past experience, or their biased observations of economic trends, with a review of available trade and financial periodicals thrown in for good measure. Usually such a forecast does not sufficiently consider the real potentiality for the market. More often than not company managements defer preparation of formal sales forecasts because the obstacles encountered in such preparation are, they believe, too formidable. No business, however, can survive very long unless its management has some sound idea of future prospects. Generally, volume can be predetermined within reasonable limits. The accuracy will, of course, vary with the product and type of market. Goods with a high frequency of purchase are fairly easy to forecast in total, but the sale of particular brands may fluctuate with changes in competitive promotion methods. Capital goods, engineering specialties, and style goods are subject to extreme cyclical variations and, therefore, more difficult to forecast. Essentially, the products of our plant fall within the category of capital goods; their sale is primarily to industry. Rarely does the average citizen come in direct contact with them.

All of our sales forecasting is concerned with the ensuing budget year. Such short-term forecasts give full effect to our own divisional representatives' opinions of the general outlook for business in their specific markets for the coming year. They also take into consideration two important segments of business activity—business investment in plant and equipment, and government expenditures. Illustrating the latter, a stepped-up aircraft program might very well result in increased purchase of testing machines by the major aircraft companies with whom we are doing business; a program of free hospitalization to every citizen would necessitate widespread building programs, resulting in heavy requirement of commercial laundry machinery which we produce, etc. Such programs could have considerable impact on a particular division's future sales. Various other factors, of course, influence our management's forecast of future business conditions. Consideration may be given to the introduction of a new or improved product and its ultimate impact on the total available market, rate of growth of the industry itself or its rate of regression, the division's relative position in the industry, changes in our sales policies concerning prices, terms, allowances and deliveries, adoption of new channels of distribution, adding or

opening up of new territories, and increased or decreased sales force. More than anything else, perhaps, our sales forecasts depend on the general economic outlook not only here in the United States, where lies the bulk of the market for most of us, but in the rest of the world as well.

The most important factor is the establishing of a selling price at a point where we can obtain the required volume. Selling price can be established in two ways, each of which may have a different reaction on our business. In one case, price can be established by taking all costs, adding the required profit factor and arriving at a price that will give us the required profit. In the other case, when competition establishes the selling price, it is the responsibility of management to design products so that costs are within the required limits to give us the profit essential to carry on our activity. Primarily, the pricing structure of all of our divisions falls within the limitations of the second instance. From time to time, however, we are in the position of building equipment for special applications, and we can then operate under the principles of first instance. Generally, the advantage is not a long-lived one!

Selling Expense Budgets

All preliminary factors having been considered and the divisional sales forecast made and approved by top management, a budgeted profit and loss statement is then prepared for each division. This entails, first, conferences with each sales manager in connection with the preparation of the divisional selling expense budget, formalizing the budget and then securing top management's approval of it. Each of the sales expense accounts is reviewed in detail. Historical data is carefully studied. Unusual factors or costs are discounted in an effort to arrive at a reasonable "norm." To this base, we add any applicable cost increases, as well as any additional budget sums for projects authorized for the immediate future. "Nose counts" will be made of salaried personnel in each of the sales departments, and the budget requirement expressed in terms of dollars. Provision may also be made for additional personnel to be employed during the budget period. If salaried increases are contemplated sometime during the first half of the year, then these increases will also be made a part of the total salary requirements of the divisional sales office. Advertising programs are set down in detail and the cost of such program ascertained. Determination is also made as to the number and type of conventions to be participated in and the approximate cost of such participation. In its approved form, the divisional sales expense budget represents the framework within which the sales manager may operate free from criticism.

Manpower Requirements; Material Costs

The next step involves determination of the total direct labor hours necessary to produce the forecasted divisional volume. Comprehensive historical divisional cost schedules provide us with a breakdown of this cost element and its relationship percentagewise to the sales dollar. Adjustment may be made in these bases, either upwards or downwards, to take into effect cost increases or decreases. Having a knowledge of the average divisional hourly rate enables us to calculate just how many man-hours will be required to produce a given volume. Divisional sales as forecasted are considered in the broad light of only three categories—machinery, parts, and service.

With few exceptions, materials are the largest element of cost in our sales dollar. I sometimes feel that we tend to overemphasize the need for reduction of the direct labor portion of the sales dollar, whereas more spectacular cost reduction could perhaps be effected in the material classification which represents such a greater percentage. For budget purposes, we set material at approximately the same percentage of the sales dollar as actually resulted in the prior year. It may be questioned how we can do so in the face of ever-increasing material costs. Budget-wise we justify it on the grounds that our searching for cost reductions will generally result in some material savings. This, coupled with selling price increases, should enable us to maintain the same relative position of material to the sales dollar from one year to the next.

Factory Budgets and Allocation of Factory Burden

Simultaneous with the establishment of selling expense budgets, factory budgets are prepared, covering all factory expense account classifications. As our first step, we list all personnel on both our salaried payroll and our factory indirect payroll. Meetings are held with the factory management to review these lists and finally establish the manpower required by the various departments or activities. This manpower requirement is translated into budget dollars. To these figures will be added rate or salary increases that may be contemplated for the following budget period. Since the number of indirect personnel required to produce the total volume set by sales forecast has been stated by factory management and then translated into dollars, this leads us to believe that we have a very sound foundation, namely, that the labor section of the manufacturing expense budget is an actuality, which should result in a workable budget. All expense allowances in other expense categories are based on established experience and adjusted for such increases or decreases as can

reasonably be substantiated.

The question naturally arises as to how factory burden is allocated for so many divisions. We utilize individual machine hour rates, or, if several of the same type of machines are in use, the group may be specified as a cost center, and a rate applied for the group. These rates are composed of two elements — the direct labor rate of the productive personnel involved, and an amount of factory burden applicable to the machine or cost center. To illustrate, let us say that an engine lathe carries a machine-hour rate of $6.20 per hour. The machinist operating the engine lathe receives an hourly rate of $2.45. The difference, or $3.75, represents the burden absorption rate for the machine center. Therefore, each productive hour will absorb $3.75 of the total manufacturing expense. If our operation generates 70,000 direct labor hours, total expense absorption would be $262,500, assuming the same center rate and direct labor rate referred to above. Manufacturing expense is, therefore, injected into prime cost through the use of the machine-hour or cost center rate. Again to illustrate, if we were producing a piece of equipment requiring 100 hours to build, then prime cost would be charged with $620, assuming the same figures as above, of which $245 would represent the direct labor portion and the balance, or $375, would represent a portion of burden so charged into costs. At the end of each month, the actual overhead expense is compared with the amount applied to production through centers. The resulting variance, representing either over- or under-absorbed burden, is charged or credited to the divisions based on their contribution of direct labor hours and is so reflected separately as a below-the-line cost on the divisional profit and loss statements.

Other Components; Divisional Profit-Loss

Returning to the divisional profit and loss statement, certan other below-the-line costs, which our management chooses to bring directly to the profit and loss statement, are allocated to each division either on an actual basis or in proportion to its contribution to the total. For our purpose, these include unabsorbed manufacturing expense, development, obsolescence, overtime and wage adjustment, less cash discount on purchases.

All of this having finally been effected, we are able to calculate a budgeted divisional profit and/or loss. Finalized budgeted divisional profit and loss statements are then submitted to management for consideration and approval. An advantage gained from making a complete set of budgets for each division on a forecast volume of business is that it enables the division head and our

chief operating officer to have as accurate a picture as possible of what is ahead, so that they may have time to effect any change necessary to insure a satisfactory profit.

Break-Even Point Analysis as a "Follow-Through"

We now go one step further and establish divisional break-even points. A working knowledge of break-even points is a matter of prime importance to today's business managers. Unfortunately, too few executives realize beforehand at what sales volume their operation no longer yields a profit. They seldom see the red until they are into it. Break-even analysis indicates just how sensitive a business is to recession. This analysis is usually graphically presented in the form of a profit graph or break-even point chart, furnishing a complete picture of the profit structure which enables management to distinguish between the effect of sales volume fluctuations and the results of price or cost changes upon profits.

Before the break-even point can be discussed intelligently, a vast amount of operating background must be analyzed. The complete history of costs, such as labor, material (broken down into a few of the more important types), overhead costs and distribution costs (in relation to list prices and current sales prices) must be reviewed. Supplementing this analysis, we prepare a budget department chart entitled "increase in costs and selling price comparing 1947 to 1958 with 1940." On it are graphically represented our selling price changes —net and list, variations in the cost of certain major material purchases, and our composite plant hourly labor rate. The labor rate, of course, has far outstripped all other cost elements. Only through product redesign and operating efficiencies are we able to temper the impact of annual labor rate increases and maintain our relative profit position.

After a thorough and complete history of operations is available, we begin the task of arriving at a break-even point in divisional operations, based on a given level of operation, by forecasting what will happen to each cost factor during the budget period. There are certain complications in break-even analysis in a single plant or single division operation, such as the mix of products and the amount of concessions allowed; that is, the sale of various types of products with varying percentages of profit will produce different results at a given level of operation. If we sell more of the non-profit or low-profit items, it means that the break-even point goes up. As this thought or concept is applied to multi-plant or, as in our case, multi-division operation, such complications grow in greater proportion.

Setting Up Cost Factors and P/V Ratio

We consider costs to be either fixed or variable. Fixed costs, as we contemplate them, are those that tend to remain at the same point regardless of volume, while variable costs tend to carry through on a percentage of volume. Management determines both fixed and variable elements, then tries to operate within these limits.

Material is a variable cost in most cases, but the degree is dependent on three groups. Engineering specifies type or class of material, also size and dimension. The purchasing department must buy the proper material at the best possible price. The factory must use the material to the best advantage, eliminating waste.

Direct labor is a variable cost. Personnel management and direct factory supervision each have their part to perform to control this cost. Design of product also has a bearing on the percentage of direct labor to selling price or total.

Production is not a static thing. Consequently, factory expense will also be subject to similar variations. We utilize the variable type of budget to meet the problem of rapid changes in production conditions because it takes the ups and downs squarely into account. There are those who will argue that expense with relation to volume does not take the form of a straight line when charted but, rather, rises and falls in steps. This may be true with a single expense classification but, where a number are involved, the steps in each classification will invariably occur at different times, thus tending to offset each other. As a result, in practice, the line of expense with relation to volume takes on a surprisingly smooth and uniform appearance. The degree of flexibility which should be injected into the budget depends upon the purpose to be given major emphasis. For some, little or no flexibility is required. There are individuals who advocate the use of zero production as the best for determining fixed and variable expense factors. We do not recommend this approach. It will result in an extremely high variable factor which will be found to be unworkable in many applications. At the other extreme, it is not our recommendation that the fixed portion of any expense item be set too high, other than those items which are, for all purposes, fixed charges, such as insurance, taxes, depreciation, and machine rental. Scattergraphs are widely used to distinguish the fixed and variable elements of the expense under review.

Essentially, we attempt to use good sound judgment, keeping in mind just what we want our budget to do at varying levels of operating activity. This naturally results in considerable analytical work to observe the behavior of each

expense classification at certain operating levels. To illustrate, let us assume that we have a budget set for stockroom clerks which uses as its base 70,000 monthly direct labor hours. Fixed and variable elements have been established. Now let us test it at 60,000 hours, using the pre-selected fixed and variable factors. Will the resulting expense give us what we had anticipated? If it does not, then the fixed and variable portions of the total expense at the 70,000 level will have to be adjusted so that the new factors will take our expense down to what we are "shooting for" at the lower level.

Parenthetically, budgets, in my opinion, should be kept simple. Use of relatively few accounts simplifies the mechanical job of preparing the budget, makes it easier to report the results and helps drive home comparisons. To a great degree, we budget by activity within the broad categories of factory, office, engineering, and selling. We do no factory departmental budgeting as such. We believe it serves no purpose except to create a maze of figures and, when presented to line foremen, only adds to their every-day problems. Of course, in all fairness to those strong advocates of factory departmental budgeting, it must be acknowledged that our plant is medium-sized and the entire picture is fairly easy to comprehend and control in total, whereas, in an extremely large-sized operation employing thousands of people, departmental budgeting is certainly warranted.

Other cost factors, such as development, obsolescence and overtime may be fixed or variable but are generally controllable by management.

Selling expense is both fixed and variable. The amount expended for this activity should have a relation to selling price and selling profit. If selling price is high enough, we can support a more expensive selling organization, assuming there is good cause for it. If a large percentage of the volume of any given division is "bid" business, it is possible to handle this from the sales office at the plant without too much outside selling effort, thus resulting in decreasing selling expense.

The break-even point, itself, is arrived at mathematically by dividing the total fixed expense by the profit-volume variance (100% less the total of all variable percentages). For example, let us say that a plant can produce goods with a sales volume of one million dollars per month. A study of costs and expenses indicates that the variable costs (those that generally follow sales volume) such as material, direct labor, a portion of the factory burden and a portion of the selling expense, etc., equal 64% of sales. A review of the cost possibilities indicates that monthly fixed expense requirements are as follows:

Burden	$104,400
Development	30,000
Selling expense	60,000
Total	$194,400

Since the variable expenses are 64% of sales, the profit volume variance is 36% (100% less 64%), that is, the sales over the break-even point should produce profit at the rate of 36% of such excess. This ratio is generally referred to as a profit-volume ratio, or p/v ratio. The calculation would therefore be as follows: fixed expenses, $194,400 divided by 36%, the profit volume variance, equals $540,000, the break-even point. Suppose the sales volume for the month is $900,000, then, by deducting the break-even sales of $540,000, we arrive at profit volume sales of $360,000. By multiplying $360,000 by 36%, the p/v ratio, we arrive at a profit of $129,600 under the budget plan.

Profit and Loss Statement Forecast

After break-even points have finally been established divisionally, there is a final consolidation of all figures to arrive at a total plant profit and loss statement. At the same time, a total plant break-even point is calculated, together with related p/v ratio. This total profit and loss statement is then submitted to top management for its approval. Provided management concurs that the projected profit and related p/v ratio are satisfactory, this statement, together with all supporting budgets, becomes the master budget plan of operations for the plant.

It is my conviction that such a plan, properly constructed, can be the most effective method of controlling the operations of a business because it constitutes the guide and goal for each member of the management team. In addition, the master budget plan records in black and white what each member hoped for and expected to do in the following year. The results of any business will be more effective if management has definite objectives which are to be achieved. This applies to all levels of management. In a small business, the manager need only have the objectives fixed in his mind, but the larger the organization the greater the need for a more formal presentation of the overall company objectives. If objectives are lacking or not clearly defined, there can be no real sense of accomplishment because there are no goals. The formal master budget plan, however, provides a tangible measure by which our divisional sales managers and other operating heads can appraise their accomplishments.

Effecting Control

Once our master budget plan is a going concern, all of the budgetary work is handled by our budget officer. The repetitiveness of this type of work by the same person gives him a grasp of the situation that makes him very helpful to management. The fact that one person can prepare a forecast of profits for the entire business under various conditions, costs, prices, volumes of business, etc., makes it possible to get a budget on any desirable basis on short notice. Another important duty of the budget officer is to stimulate the development of new and more economical ways and means to obtain results.

Other aspects of our budgetary control system involve comparing actual performance against budget, investigation to determine cause of failure to perform according to plan, reporting it to chief operating officer, and attempting to correct the conditions which caused these deviations. In addition, all expense requisitions are required to clear the budget officer's desk for review in advance of spending, to insure compliance with the budget limitations and to avoid unnecessary expenditures. Further control is exercised over capital expenditures, special development programs, tooling, and unusual expenses, through the use of special applications for appropriations, all of which must be processed by the budget officer.

Intelligent budgetary control cannot be accomplished by threats, nor can it be accomplished by a mere sincere desire on the part of executives to carry out their responsibilities under a budgetary system. J. L. Peirce, Vice President and Controller, A. B. Dick Company, Chicago, and one of the foremost leaders in budgeting put it this way: "Budgeting, and this applies to the control side of it particularly, is an attitude. Attitudes are the key to successful budgeting. When the attitudes of people toward each other are generous and understanding, any technique adopted by management to further good performance is likely to be successful. When human attitudes are dominated by distrust and criticism, budgets are likely to fail miserably." ("Budgets and People: A Positive Approach," James L. Peirce, Guides to Modern Financial Planning, *AMA Financial Management Series* No. 104, page 4.)

The Financial Forecast Needed, Too

The financial forecast is an integral part of the budget program and, in our plant, the budget officer is charged with its preparation. One might develop a financial forecast without necessarily preparing a formal budget, but budget management would be remiss were it to construct a good budget program and

then fail to translate it into a financial forecast. Such a forecast is used to predict profits, other funds provided, funds applied, working capital in use, cash collections and requirements as well as changes in balance sheet items. For budget purposes, an exact sales forecast is not absolutely essential, assuming that the flexible type budget together with break-even points is in use. It is a much different matter, however, when it comes to the financial forecast. Then the projection of shipments must be most realistic. If it is not, any fiscal projection will be wasted effort.

We prepare a statement which is headed "forecast of sales, profits, funds and working capital." It is initially prepared at the start of the new budget year and is revised at the start of each quarter. The quarter at hand is detailed by months; the remaining three quarters are detailed by quarters. It is the "rolling" type forecast in that, as a quarter is concluded, the forecast rolls out to pick up another quarter; in other words, the forecast will always cover a span of twelve months. Reflected on it is the following:

1. Net sales, broken down between commercial business and renegotiable.

2. Funds provided, consisting of selling profit as derived from commercial and renegotiable sales, general and administrative—net, depreciation, and net value of capital assets retired.

3. Funds applied, consisting of net cash transferred to our New York executive office (we collect all cash for the account of our executive office and at the same time "borrow" from it cash to cover all of our requirements), decreased by payments made by our executive office for our account (executive salaries, certain taxes, insurance, etc.), and capital expenditures.

4. Balance retained for working capital, representing the difference between funds provided and funds applied.

5. Working capital in use, consisting of cash, accounts receivable, notes receivable, reserve for bad debts, prepaid expenses and deposits, and inventory—net, less accounts payable and accruals.

6. Collections and requirements.

Primarily, the real purpose of this forecast is to show management the origin and disposal of all cash of the business and the balance sheet effect of such transactions.

At the End of the Path: Profit

The major objective of our operation at East Moline is the earning of a profit —in good times or bad. Profits are the criteria of successful management. Properly set up, accepted and agreed upon by those assigned responsibility for control and supported by top management, a budgetary control program is a means by which such a profit can be realized.

A Pitfall in R.O.I. Reporting

by G. W. JACKSON*

The excellent article in the May, 1959, *Bulletin* (Did We Realize on that Capital Outlay?) by Arthur V. K. Deekens points up sharply the neglected problem of post audit of capital projects and illustrates a very realistic method of comparing results against expectations.

However, the accomplishment report should be just that and that only. It should avoid the common error of expressing one year's savings or income to the capital investment required as return on investment. Only the discounted cash flow method (calculated rate of return or investor's method) can do this correctly. For this, one year's savings alone is not sufficient for determining the rate of return. It is the entire stream of future earnings and their timing over the economic life of the job which counts in determining R. O. I.

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You Can Use Flexible Budgets for Engineering Costs

by LESMES P. RODRIGO

IN THIS DAY AND AGE of scientific progress, greater and greater stress is placed on all industry in the field of technical advancement which results in increased engineering content of its expenditures. In line with this, it is fitting and proper that greater attention be directed to closer control and analysis of the important field of engineering costs and expenses. The purpose of this article is to outline the principle of fixed-variable engineering overhead budget as a suggested means of accomplishing better cost control.

Engineering's Organizational Structure; Inadequacy of Fixed Budgeting

The activities of an engineering organization may consist of (1) design engineering, (2) production engineering, (3) engineering administration and (4) technical writing. Design engineering may be performed by one or more organizational components, each assigned one or more product lines. It is concerned with conceiving, developing and designing new or improved products. Production engineering is normally performed by one organizational component servicing all the design engineering organizational components. Production engineering is a support function for the engineering organization. The responsibilities of this segment of the organization are centered on approving work specifications, adopting reliability data for the limits of effective performance under varying conditions and establishing standardization of designs, components, and materials for use in all equipment. Engineering administration is normally performed by one organizational component servicing all the other engineering organizational components. Some of the functions of engineering administration are analyzing customer complaints, developing engineering procedures, training personnel, processing annual budgets, and other administrative work. Technical writing is a function organized similarly to production engineering and engineering administration for it is usually performed by one organizational component

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servicing all others. This activity includes the writing of technical reports to customers and management.

An engineering cost budget is normally prepared by summarizing all the projects which the engineering organization wishes to undertake for the coming year. Once the projects and their costs are approved, the costs are translated back to original accounts for the purpose of preparing a budget by individual cost and expense account classification. Actual costs are then compared to the fixed budget approved. But, at best, a fixed budget is only an estimate arrived at some time prior to the incurring of actual costs and based on a specific estimated level of activity. Any major change in level of activity renders the budget obsolete. Actual experience with a fixed budget reveals that it does not recognize varying expense allowance for a level of operation other than the level stated in the original budget. The principles of fixed-variable engineering overhead budget, which recognize varying expense allowances for levels of operation other than the levels stated in the basic budget, are now to be outlined.

Basing Flexible Budget Allowances

The engineering organization may be viewed as two groups, operating and non-operating, the premise being that it is possible to divide the engineering organization into areas having like characteristics. It is felt that in most cases the principles formulated for a group can be applied to each component within the group. The advantage of this is that it results in a minimum number of bases, which facilitates budget preparation and interpretation. The design engineering organizational components are grouped into operating components and nonoperating components performing support functions such as production engineering, engineering administration and technical writing.

Generally speaking, there are two methods used to estimate semi-variable expenses at different volume levels. One method is to prepare detailed estimates and calculations of every semi-variable expense item at the levels under consideration. The second method is to apply the theory that every semi-variable expense item consists of a fixed and a variable portion. Between certain volume limits, each expense item can be segregated into fixed and variable portions. The fixed portion is assumed to remain the same between the volume limits selected and the variable portion to move up and down in constant proportion to the volume changes between the two limits. The latter method is used in the procedures described in this paper. The fixed and variable content of each item may be determined by the minimum/maximum method, statistical "least squares" method or by graphically fitting a line to the data.

The first step is to determine the base or bases which will prove applicable for each and every account. The selection of the base should be limited only by the following factors:

1. Easily calculable.
2. Readily available at times of report preparation.
3. Adaptable to machine accounting.

In order to search out the applicable bases, it is necessary to analyze recent historical cost and expense data, provided that a period be selected which may be considered typical of operations of the engineering organization. Exhibit 1 summarizes the recommended fixed-variable budget structure, showing for each general classification of expenses the general group in which it falls, the recommended basis for the budget allowance and the basis for the budget allowance calculation.

Because of the dominance of manpower and its extreme effect on an engineering organization's costs, greater stress is placed on detailed classifications of these accounts. Since an engineering organization's work is primarily creative, its most important resource is manpower. Therefore, salaries usually represent the largest item of cost. Salaries are classified as to those of managers, specialists, engineers, technicians, draftsmen, clerical, photo personnel and model makers. Salaries are then segregated into the following areas: applied salaries, unapplied salaries-applied personnel, unapplied salaries-unapplied personnel, etc., and each of them divided into operating and non-operating group. Applied salaries represent the portion of employee's time, translated into salary dollars, which can be applied directly to a specific project. Applied salaries serve the purposes of: (1) costing a specific project or job for the time of engineering personnel expended on that project and (2) providing a base for assigning the applicable overhead cost to the specific project. Unapplied salaries represent (1) total salary of employees who normally apply time to a specific project, less their applied time translated into dollars and/or (2) the total salary of employees who do not normally apply their time directly to a specific project, e.g. managers and clerical personnel.

Applied salaries and unapplied salaries-applied personnel are charged to the same salary accounts, but are also coded as to applied or unapplied. A mutually agreed upon percentage of unapplied salary is applied to each salary account and an unapplied allowance calculated. Current-year budget preparation and interpretation of budget performance in previous years will establish data from which these rates can be derived. This data may be tempered by unusual situations for the budget year.

BASES USED IN SETTING BUDGET ALLOWANCES

Expenses Salaries	Group	Recommended Bases *	Basis for Budget Allowance
Unapplied salaries-applied type personnel	Operating	Total salaries-each account	Predetermined unapplied time %
Unapplied salaries-applied type personnel	Non-operating	Total salaries-each account	Predetermined unapplied time %
Unapplied salaries-unapplied type personnel			
Supervision	Operating	-	Programmed
Supervision	Non-operating	-	Programmed
Clerical	Operating	Technical salaries-operating	Formula
Clerical	Non-operating	Total technical salaries operating & non-operating	Formula
Photo personnel	Non-operating	Total technical salaries	Formula
Other expense accounts			
Shop supplies	Non-operating	Total applied salaries	Formula
Office supplies	Non-operating	Total salaries	Formula (partly programmed)
Rearrangement	Non-operating	-	Programmed
Rent, heat, light	Non-operating	-	Programmed
Travel and living	Operating	Technical salaries operating	Formula (partly programmed)
Travel and living	Non-operating	Technical salaries non-operating	Formula (partly programmed)
Telephone and telegraph	Operating	Total salaries operating	Formula
Telephone and telegraph	Non-operating	Total salaries non-operating	Formula
All other controllable expenses	Operating	Technical salaries operating	Formula
All other controllable expenses	Non-operating	Total technical salaries	Formula (partly programmed)
Stockroom	Non-operating	-	Programmed

* Definition of bases selected: Total technical salaries - includes supervision, design engineers, and other specialists salary accounts for the entire section, Technical salaries-operating - technical salaries of organizational components in operating group, Technical salaries-non operating - technical salaries of organizational components in non-operating group, Total applied salaries - all applied salaries in engineering organization, Applied salaries-operating - applied salaries of organizational components in the operating group, Applied salaries-non operating - applied salaries of organizational components in the non-operating group, Total salaries - all salaries for the engineering organization, Total salaries-non operating - all salaries in the non-operating group, Total salaries-operating - all salaries in the operating group.

EXHIBIT 1

Unapplied salaries-unapplied personnel for the operating and non-operating group involve relating these salaries to the applicable base or bases as shown on Exhibit 1. In some cases, a particular expense does not vary within reasonable limits to volume. These items can be "programmed", which means that a specific amount is planned in relation to a fixed required program for the budget year.

There are two general avenues of application of the principles outlined above. Each has its advantages and disadvantages. The first is historical application, in which formulas are calculated from prior periods and applied to the bases in the current budget. The other method requires that current formulas be prepared using the same bases and principles but derived from the static budget for the future accounting period. It would appear more appropriate and in accordance with good budgeting procedure to prepare the fixed-variable budget based on the information for the succeeding period.

Progress Toward Control

It will be noted that no effort has been made to limit the accounts to one base. Herein, it is felt that flexibility is achieved and thus is avoided the weakness of many fixed-variable budgets, where serious compromise with accuracy has often been made by the selection of only one base for all accounts.

Relationships can be studied along the lines described and appropriate bases selected for each operation. We are confident that the application of such a flexible budget will provide a more useful and accurate measurement for management control of an engineering organization's costs and expenses.

EXHIBIT 1

The Mix Won't Stand Still

by JOHN F. BOPP*

I read, with interest, Mr. R. A. Curry's article in the March 1959 *N.A.A. Bulletin,* relative to "Break-Even Analysis and Product Mix".

As the author points out, gross profit margins vary widely in multi-line, multi-product companies. Methods of distribution and interchangeability of plant facilities further complicate the break-even problem, particularly if southern plants can manufacture the same product at different wage levels in more modern plants than northern facilities. Some authors propound "profit poly-graphs" and similar break even analysis techniques. However, in a competitive dynamic economy, particularly if manufacturers are partly or entirely dependent upon foreign sources of supply or foreign markets for the finished product and where the governments (domestic and foreign) are major influences, it seems that time is wasted in chasing rainbows, and a great deal of effort is expended in attempting to find, what in chemistry is called the universal solvent. The author's observation relative to the break-even point being good for the mix of products, which is assumed for the study, is, of course, correct. And, as it was stated, the mix does not stand still.

I was wondering whether any consideration has been given to preparation of a basic set of break-even analyses, which might be updated frequently by programing through a computer system. This would mean feeding, through the program, recent data relative to costs, product mix, total market, share of market, pricing, direct distribution costs, etc. With good programming and adequate data, it might be feasible to develop trends of product mix (seasonal and otherwise), gross profit or loss, etc., which would aid production, distribution, and development management. Such a technique may now be employed by the industrial giants, who have adequate volume. However, the small to medium-sized company must depend on market research and still be lucky to be right. From the 1957 automobile industry's problems, perhaps the industrial giants are no better off than smaller companies, since it is the individual, usually unpredictable, who makes the final decision to buy or not to buy at a price and antiquates break-even charts before the ink is dry.

I move that break-even studies be relegated to the economic theorists and that industry develop other measurement devices through budgets and standard costs without endeavoring to compute complicated static break-even analyses. General and specific economic factors must be evaluated, together with prior and current performance, to plan buying, manufacturing and distribution levels and product mixes.

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Forms Designing as a Step in Systems Improvement

by JAMES E. BARRY, JR.

THE TOP MANAGEMENT of a successful corporation recently determined that the forms and systems in its organization had not kept pace with the phenomenal growth of the company and decided to do something about the matter. Rightly, the first consideration was choice of the man who would be placed in charge of this often hard and thankless task, and the qualities necessary in this individual.

A Forms Designer — Salesman, Artist or Mechanic?

Should he be a salesman who could successfully persuade the numerous individuals handling paper work to go along with company changes? Should they look to the advertising department for a man of the creative type because, as someone has remarked, preparing a new form is inherently creative? Or should he be a technician with background and experience in the office or accounting department and already grounded, or at least partly so, in company policy, organization and methods of doing business.

The executives of the company decided that the technical aspects of the problem outweighed the other factors and settled on a technician who, they felt, could handle the mechanics of a workable schedule. It would undoubtedly be necessary for him to acquire the other virtues of careful handling of the personal relations side of the problem and possibly enlist the aid of the firm's artist or other personnel in the advertising department for assistance in "dressing" outside forms or documents. He must also have a questing and open mind and the ability to persuade co-workers that they are embarked on an interesting and worthwhile adventure that will aid not only the company but will also make their own work more important and easier to handle, with some of the attendant drudgery eliminated and its value increased.

There is little doubt that the technical or mechanical side of the work is extremely important. If this is not soundly conceived, successfully solved and

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properly presented to the many individuals who must use the forms and systems that are adopted, the work is open to ridicule and either overt rebellion or careful sniping, with results pretty much the same. The justice or injustice of the matter is quite often of little significance. There have been many sound programs lost and discarded for want of people with a will to win through with what they have, rather than any basic flaws in the tools themselves.

The program still is in high gear, extending throughout all accounting operations and further expanding into the manufacturing end of the firm. This fact clearly demonstrates that the approach and methods employed by the company have been decidedly effective. In the foregoing paragraphs, I have several times used the phrase "forms and systems". They go together. However, it is the mission of this article to deal principally with forms design.

First Set Up a Picture

Probably the first tool of importance is the flow chart. Such a chart will show that paper work is intimately tied into most operations, although in many cases it will be true that the system, procedure and process of writing the form will constitute a project in itself with very significant effects in the operation of the company, and with possibility of important savings. It is this setting up a "picture" that provides a ready and efficient way of looking at the problem in condensed version to get an over-all view of what the procedure looks like today, to spot the problems and search out the way of solving them.

After careful study and examination of the flow chart, the next step should be a gathering of all data regarding the form or forms involved and an outline of the results to be accomplished by revision or change of the form and system. Therefore, some sort of chart or form setting out the objective and the conception of the to-be-hoped-for improvement is necessary. It is at this point that the technician or forms man (if he has not been part of the group from the beginning) should be asked to join the group to gather facts and organize the material to the end that those who will use forms and systems are brought into the plan at an early date, made part of the team, and given an opportunity to see the complete picture and to share in the accomplishment of the job. This is another step in obtaining cooperation along the way to insure smooth installation of the new system which will ultimately be adopted. It is never too early for this work and, if it is properly performed, the final checking out and selling of the completed system or form will be more or less automatic. The importance of this should not be overlooked or explained away on the grounds of timetables, rush to start installation the first of a period, etc. A completely open mind on the

part of all involved is of prime necessity if success and any degree of permanence is to be achieved.

Now can follow a modification of the flow chart, in effect a separate examination chart of the complete set of forms and the handling from the time it is processed by machine or hand to the final destination of each of the individual parts of the whole set. Quite often a separate chart is prepared for each part of the set to trace down each and every step in the entire operation. It is this simplification and breaking down into easily managed parts of a sometimes complex operation that gives ease, expertness and scope to the examiner's work.

The first chart should show the line of flow of the complete set of forms from the time it is written until the set is separated as well as the subsequent handling and distribution of the component parts. If necessary, separate charts should be created on each and every part of the set to the final destination or filing by parts.

Determine the Forms Handling Cost

In this latter phase, it is important to know the cost factor of each activity. There should be set up some kind of yardstick suitable to the cost of the program being studied which incorporates all the facts, for example, the number of operators typing that particular set, the dollar rate of the operators of the equipment preparing the set, the number of sets typed per day or whatever unit of time is used (hour, week, etc.). The same measurement must include filing, posting, distribution of parts or whatever subsequent operation is performed until the transaction is terminated and the next one taken up for handling.

Some of these operations might be as follows:

1. Separate into single sets manually, as written, carbon intact.
2. Separate into sets by means of multiple detacher, carbon intact.
3. Decollate on power decollator, removing left and/or right sides.
4. Run over Addressograph machine equipped with Addressoliner (used in continuous forms handling).
5. Run over Addressograph machine as single sets, manually.
6. Single parts, after decollating (No. 3 above) are detached manually.
7. Single parts, after decollating, are detached on multiple or single detacher.
8. Parts No. _____ are decollated as (number of part) _____ sets when run on power decollator.
9. Parts No. _____ are detached into sets (after No. 8) manually or on multiple detacher.

10. Parts No. _____ are kept in file as set for later entries. Carbon intact.
11. Parts No. _____ are kept as sets, in file, less carbons for later entries.
12. Parts No. _____ after detaching, are mailed out together, less carbons.
13. Carbons are removed from Parts No. _____ (after No. 8, No. 9, etc.)by corner cut or perforation. Describe fully _____
_____.
14. Margin(s) removed by hand while form is filed in continuous style or length by stripping. Each part (number of part) _____ then filed in binders in continuous style.
15. Forms (after No. 14) are decollated and detached on detacher.
16. Forms will have stub(s) slit off and will be decollated and detached completely on combination decollator detacher device.
17. Form will be run over imprinter for (1) imprint, (2) date and (3) _____
_____ (explain fully).
18. Side ties between parts _____ will be slit on formaliner when doing operation No. 1 (shown as 9 under sequence).
19. Carbon is removed from entire set by: _____
_____ (describe fully).
(Be sure to describe whether manually or by decollator).

This is by no means a suggested list of operations but merely a series of possible steps. Construction of the form will determine how many of the steps will be needed to fit the individual case as seen by the forms designer. It is well to remember that generally the fewer steps needed, the lower the forms handling cost.

The Project Check Chart

The forms designer should realize that step-by-step analysis or check charts definitely do not complicate the job at hand. Rather, they simplify and make the job an automatic one of following a set course of questioning which, by easy steps, will lead to a complete analysis of the form or system as opposed to taxing one's mind in trying to remember pertinent questions that should be asked or recorded. It is reducing the detail part of the work to an easy formula which provides the necessary panoramic view of the segment of work under review.

A form check chart is often used with side listings, such as:

Functions and distribution.	Handling of form.
Origin of form.	Filing.
Destination of form.	Size.

Under Functions and distribution might come such information as:

The present form number and name.
Primary function (invoice, receiving report, etc.).
Type of form now in use (construction).
Estimated volume per day, week, or month.
Type of construction recommended.
Number of parts to set and short description of plate or composition changes, such as part 1 is master, part 2 same as part 1, part 3 same as part 1 with exception of routing instructions (to shipping department).
Color of paper for each part.
Backer (reverse side printing) on which part or parts.
Weight and grade of paper for each part.
Any parts which serve two or more purposes.
Variable number of copies required (what percentage is uniform).
Is set consecutively prenumbered for accounting control?
Sorting identification (color paper, printed routing instructions, colored ink, etc.).
Quantity of present set on hand and quantity being requested and by what department.
Does form provide sufficient instructions to recipients?

This sort of questioning or check chart provides a handy work paper showing sequence of work to be performed to acquire a complete picture of the operation.

Under Origin of form might be listed:

form (name, mail, phone), preceding forms, combine with previous form, line up with previous form or other form, check on previous operation, when sets needed, number of points of use, percentage of each, steady use, intermittent use, peak load when, deadlines to meet.

Again this provides a work sheet or list of work to be performed by the analyst before the work is complete and insures that no important step is overlooked.

Under Designation of form might come such questions as:

to whom, sent by mail or other means, use window enevelopes, fold mark indicators, recopied to, combine with later form, line up with a later form, special features (reasons, paper, handling, etc.).

Under Handling of form there might be listed:

Filled out at one writing _____
Separated immediately _____
Audit control _____ which parts travel together _____
Where _____ Number control _____ Later entries _____
Which parts _____ Misuse of forms _____
Unwanted _____
Information on some parts _____ Which parts _____
Alteration _____
Handwritten _____ Machine (describe kind and model)
_____
Both hand and machine written _____ which parts hand and which machine and in what sequence _____
How check responsibility for each operation _____
Is this form set up for minimum tab stops or most efficient take-off of information from source record or original entry _____
(explain fully) _____
_____
Note (if first or source record is not efficient, then redesign source record also and describe)
Any new machines or equipment contemplated _____
Cost of new machines _____ What kind and estimate possible savings by mechanization and describe fully _____ (separate letter if necessary).
Any change in system for contemplated _____ Space for checking _____ Space initials _____

Under filing there might be listed:

Filed in binder _____ In book _____ Acco fastener _____
Size filing equipment _____ Many sets on hand _____
Cheaper to replace (describe fully) _____
Copies filed alphabetically _____ Copies filed numerically _____ How else _____
Troubles (any weak lines in operation—describe fully) _____

Under Size might appear:

Size of form—detached or usable size. (Do not attempt to describe construction or over-all size because of infinity of constructions available and possibility of restricting size to something other than standard. Leave size to manufacturer of forms or to your printing department who will recommend standard or economical cuts.)
Nearest standard size (obtain as above) _____
Average number of entries _____ Advertising use of form _____
_____ Describe fully (Note: Do not use unless some increased cost is warranted or might be considered as this sometimes or often involves two-color work, cost of cuts, trademarks, etc. Never

use on internal sets. Get sample of advertising, etc. Get company letterhead and tie in if at all possible with this and other suggestions by advertising department.)
Maximum number of entries _____ Minimum number of entries _____

Weakness of present set _____ Who suggested change in form and what is reason given? (Describe fully or obtain letter from individual and file with these work papers.)

Again, it should be stated that these check chart lists are not intended as representative. They may be too extensive or too limited. This much can be said. They will provide a work sheet and these or similar questions need to be answered if all the facts are to be obtained. The questions can be listed in block form and many provided with a "yes" or "no" block. One very good single form to accomplish this is a standard 8½" x 11" sheet using a portion of the backer for placement of information.

One can readily see that only a limited number of these projects will be necessary to keep a very effective forms and systems department in full operation for quite a long period. A few systems that need revision within a year's time might be evaluated and would constitute a satisfactory production if a great majority are placed in operation and tested out by pilot installations.

Basic Forms Design Elements; Application of Standards

In the matter of forms, a glance at any medium size office will show countless forms of every shape, size, color and construction. It would be well to simplify again. All forms of every kind or description divide into two kinds—hand-written sets, and machine-written sets. Keeping these two broad classifications in mind, the design of the form is composed of four factors:

1. Format (design or layout).
2. Construction.
3. Specifications (size, color of paper, color of ink, backers, numbering, etc.).
4. Combination of related sets.

All four elements are involved in form design, but let us examine the first or printing layout, even though all other factors enter into design of a complete form or set. At this point, a basic fact should be recognized. In any business the following key operations apply to any form or function: purchasing, receiving, stockkeeping, selling, production, delivery, billing, collecting, disbursing, and miscellaneous. The forms usually fall into one of the first nine listings,

which are called the nine key operations of business, and this basic concept is used by many industrial engineers. The last, miscellaneous, takes care of such odd items as gate passes, stock purchase plan forms, etc.

We now have something at hand that gives a rather simple breakdown to an otherwise seemingly complicated subject. To consider the first (hand-written sets):

1. In many cases hand-written sets are source records.
2. No well defined spacing rules exist for this type of form. More often than not they are ruled horizontally including the body of the form and ruling of $\frac{1}{4}$ of an inch or even $\frac{5}{16}$ of an inch is quite sufficient. Cross spacing or block width is governed by the space necessary to complete the block (It is well to lean to the liberal side here to allow for people of varied handwriting and a production form or a form completed outdoors in all kinds of weather is usually more open as to spacing to take care of operating conditions.)
3. Hand-written sets are usually made up in:
   Cut single sets.
   Books.
   Hand register sets stored in a metal cabinet and continuous forms advanced by crank, either manual or electric.
   Unit one-time carbon sets (also made up in carbonless paper).

Examples of hand-written sets might be (a) a sales slip in a department store, (b) an order written by salesman before his customer and (c) a receiving report on merchandise delivered. In the case of a source record like this, the information should be shown in blocks in the same sequence in which the information is usually received. As an example, the customer's name is placed at the top left in first position because either the customer's name, in case of an order, or a vendor's name, in case of a receiving report, is the first listing in recording an entry. From there the standard items of terms, time of shipment, routing, etc., probably should follow. In other words, the form is drawn as near as possible in the same sequence as used or asked for by the writer, thereby preparing the most satisfying and efficient form for the user. If the form is not a source record, it is vitally important that it be drawn so that take-off of information is in the same sequence as the source document to minimize lost motion in tabulating and transcription. It is also necessary to consider the end-use report in drawing the detail form.

Next is the machine-written form. Note that what will be necessary and vital in a well-designed machine form in most cases has natural similarity to

the suggested sequence for hand-written forms. Vertical spacing on most machines is six to the inch or increments of six to the inch (eight to the inch or increments thereof can be obtained). The exceptions generally to the six inch spacing are a fanfold machine (ratchet spacing adjustable) and some bookkeeping machines. Spacing across the width is not quite as rigid, in most cases ten to the inch is standard, applying to teletype printers, 407 tabulators, pica typewriters (by far in the majority), and most bookkeeping machines. Some exceptions are the IBM 402 or 403 tabulating printers, elite typewriters and certain bookkeeping machines.

It should be kept in mind that machine-written forms likely will be one of the following:

1. Source document (example, an order over the telephone or any order by mail).
2. Interim document (example, order edited and typed from a hand-written salesman's order).
3. Record document (example, invoice to customer for items shipped on this order).
4. Report document (sales analysis of invoices to customers, whether by salesman, product, territory, etc.).

Any form must be designed so that take-off of information from one form to another is efficient and time-saving from standpoint of transcription.

Always have the related form before you when designing its companion form in the particular operation. Machine forms are not generally source documents. If the machine form under design from a source document results in a clumsy or bad design, then both should be redesigned. Good design and procedure requires that the form be started at upper left and left open at bottom and right side. A form should not be drawn to a pre-conceived width or depth or waste will result in too deep or too wide a form, causing inefficient spacing in machine writing. Build the forms step by step, inserting required blocks and making careful study of previous transactions to determine the number of average listings needed in body. Then close off after careful checking of standard cuts of paper by consultation with the printing department or outside manufacturer of forms, because flat printing has different sizing as compared to continuous or labor-saving forms.

Use a spacing chart in drawing forms. These are available from any supply house, printer or forms manufacturer. They are employed to make the design job easier and more accurate. For machine-written forms, the paper is usually printed with light blue background or colored ink in block design, each block of the size required by one character or key stroke of the machine.

Using easy left-to-right eye flow, start the form at upper left and move from block to block. Never arbitrarily spread out blocks except where blocks on one line are matched up with blocks above or below on another line for efficient spacing by stops. There is a compromise point that must be reached in this regard. Sometimes it is faster to add an additional machine stop than to tab a greater distance in an attempt to line up two boxes of different widths for machine tab spacing. Combat the tendency to spread blocks evenly over the width of the form resulting in lost tabulating time.

Next is consideration of the construction and specifications, treated as common subject here because of their interrelated nature. We have already mentioned standard widths and depths on paper sizes. You will want in every case to review this as determined either by the printing department or the outside printer or forms manufacturer. These sources can supply information on the most economical cuts from reams or rolls of paper. If a standard size is not used, cost is usually higher for it becomes necessary to pay for the next higher standard width plus cost of cutting to size and width specified. Standard widths and depths for filing equipment, binders, storage, etc., are also factors that may influence decisions on sizes.

Specifications will cover such items as:

Color of ink to be used (for improved legibility, readability and appearance).

What parts are punched.

What parts are to have backers.

How many parts are actually needed in a set.

What is titling on each part.

Are sets consecutively prenumbered for accounting control? If so, is list of missing numbers for audit sufficient or must every set be in precise numerical sequence?

Are colored papers to be used (cheapest and fastest means of sorting copies of a set)?

What weights of paper to be used—determined by copy results needed, load and operating conditions and type and condition of writing equipment?

Get a carbon dummy or test in all cases where number of parts represent a borderline or difficult copy case.

If acknowledgement or invoice or purchase order or some document is of a legally binding nature, have terms and conditions passed on by the company attorney to see if contract is proper and binding by its wording.

The last but certainly not the least important is combination of related sets. Factors to be considered in this connection are: Is order rewritten and edited in the home office? Is order retyped for plant use? Is acknowledgement written and mailed to customer? Is an invoice prepared and sent to customer on partial or complete shipments? Are shipping papers then prepared covering shipment?

By all means, consider a combination of all of these forms into one set and one writing or an automated data processing system making use of common language machines and tape. The savings is tremendous and transcription errors are eliminated.

General Suggestions

Time and material can often be saved by narrowing the form to the lowest possible standard width or cut. The form should be titled at top (Invoice, Purchase Order, etc.). It should not be titled at the bottom which may require reading the entire form to determine its purpose or use.

Use appropriate type face for your company name, consistent with product, say, heavy bold type for steel company, light fancy type for a cosmetic manufacturer. Building some advertising message into the form is in good taste and a trend that is increasing. This very seldom adds materially to the cost of the form except where more than one color of ink is used. A company trademark is very effective on external forms such as invoices, statements, etc.

Use "sold to" indicator dots for placement to keep the form simple and uncluttered. Do not use short horizontal or vertical rules for this. Keep the form clean and sharp. Use care in ruling a machine form horizontally in body. Internal forms are often ruled and external forms not. These differ from a handwritten set, but on a machine-written form it makes for harder reading and, again, cluttered composition. If necessary for eye travel, rule not more than a minimum to facilitate eye travel across in very light ruling. Use vertical ruling of different weights for a separation of different columns or blocks. Use lighter rules for ruling within blocks, for cents, or intermediate separation.

Use phantom or screening to highlight, emphasize or draw attention to certain portions of the form. This is also used as a guide to key punch operators in picking up certain information for producing punched cards. Allow enough width on columns for totals at end of the page or end of the run. A common error is allowance of enough space for entry but not for accumulation of totals. Check tab stops carefully to see if the minimum is built into the set. If not, stretch or contract as necessary until the absolute minimum number

of stops are reached but still consistent with efficient handling of information required. Be sure the form is designed to fit a window envelope if the form is to be mailed.

Preprint on the form any standard, constant or common information to save typing, particularly where a limited number of items must be handled. A good example is a prominent wholesale food distributor who reprints all items sold, with a real savings in typing time. Another example is a company which has an asterisk printed in "quantity shipped" column on its invoice. Wherever an item is not shipped, the legend on the form applies: "Quantity ordered has been shipped complete unless otherwise indicated. Items ordered but not shipped have been back-ordered and will be shipped as soon as possible." This message would require 138 key strokes or type characters as compared to one (for the asterisk in the present set). The savings in time and money is obvious.

One should always keep in mind that the matter of good form design—and good systems, perhaps not unlike other successful work, is careful attention to a number of small points which eventually result in a substantial savings in cost of operations if the work is successful.

Making Budget Measurements Sensitive to Product Values

by W. R. EBERHART

THE CONSIDERATIONS taken in producing traditional budgets often reflect many assumptions which may or may not culminate during the budget period. These assumptions, to some degree, presuppose and predispose many elements which enter into future planning of any operation. They include maturing technological factors, material and labor changes, economic fluctuations within the industry, and many other elements which spring up in the best laid plans. The fact that such limitations exist in the normal use of budgetary controls raises the following questions:

1. Are budgets adequate in themselves for measuring and evaluating each segment of the budgeted expenses to be recovered?
2. Can periodical analyses of budget variances, without attendant product value relationship, show to a proper degree the impact of such variances and margins?
3. Should not the process of budget interpretation progressively disclose the contribution made by each segment of expense in relation to the ultimate product value and the resulting profit?

To these questions we must answer that budgets, as conventionally used, are not wholly adequate. Especially is this true with the methods commonly used in their interpretation against actual operating results. Furthermore, it is implicit that the products of the firm cannot be brought into proper perspective unless the budget is posed together with supplementary interpretation in relation to product values. Then, too, the fragmentation of standards by cost centers should be carried into reporting for top management. This suggests an evaluation in terms of a common language which can be readily understood by any level within the organization. Whether the format is absorption or direct costing, the mere reconciliation and explanation of budget variances does not serve well because it breaks the economic factors down to unrelated terms and they do not reveal the degree by which simple cost variances affect profits. With few exceptions, every dollar that is spent is meant to contribute directly or indirectly to the production or distribution of a product or products. To relate

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these contributions to expected profits, a measuring stick common to both must be placed alongside each segment of expense to measure its relationship to the ultimate product value, in order that each part may be measured in relation to the whole. This measuring stick must be a constant insofar as is possible so as to provide a bench mark to orient areas of responsibility to the ultimate required and that subsequently attained.

List Sales Value — Basic Measuring Stick

The measuring stick can be provided by the list prices assigned to the products or product items. Since many companies assign list prices to all products for cataloguing and other purposes, we have here a built-in measuring stick awaiting our use. These list prices are constants which do not vary for long periods of time and lend themselves advantageously to this purpose. When there are many products and product items, the principle of grouping can be applied (See *N.A.A. Bulletin,* February 1958, "Group Costing of Products to Simplify Operating Control," by this author).

To minimize the number of product classifications, products or product items which have similar ratio relationships of list prices to direct labor and direct materials are grouped under one classification. Each of the list prices in the group is given weight on the basis of its past percentage of product-mix in the group as a whole. The result is a composite list ratio applicable to this group of products and the basis for ascertaining ratios thereto for direct labor, production materials, variable expenses, as well as periods costs. Certain list prices assigned to product items which otherwise have kindred characteristics are not proportionately in line with direct costs. This disparity can be remedied by revising these list prices and assigning a new discount schedule to these items. Where list prices are not normally used, they can be established for accounting purposes. List sales value, used as a common basis to which to relate cost, is list sales before discount and far over-indicate gross sales. The list ratios established are in fact multipliers used to convert lists into net product value. These ratios can, in turn, be linked with percent of sales value, as will be shown later.

The accompanying illustrative exhibits are based on direct costing, with standards for product materials and direct labor. Fixed and semi-fixed manufacturing expenses are treated as period costs. At the end of each calendar year, the inventories are adjusted to reflect the inventoriable portion of manufacturing expenses by applying the standard fixed burden rate against the direct labor content of the inventory. At this time physical count is taken and inventories are

classified. Direct-cost-to-list ratios are prepared or revised as the need exists. Product group classifications, as illustrated, are over-simplified for the sake of expediency.

Shifts in Budgets Interpreted by List Ratios

The structure of sales forecasts must be adequately flexible so as to construe the results of shifts in sales mix within product groups as well as volume and price fluctuations. List ratios lend themselves to quick interpretations of such shifts. In Exhibit 1, sales are shown at two projected levels. Level 2 is shown as an increase of 20 percent over Level 1, consisting of an increase of 25 percent for Class A sales and 10 percent increase for Class B sales. So-called fixed expenses are recognized to increase by steps in operations and are integrated into the list ratios. The list ratio of sales at Level 1 is 26.7 as compared to the list ratio at Level 2 of 26.4, or a decrease for the latter by 1.15 percent of sales. An analysis of the results of both levels reveals that the return on sales of Level 2 over

Projected Operation
Group 1 - Level 1

	Sales Classification					
	A		B		Total	
Sales forecast - List values	$200,000		$100,000		$300,000	
	Amount	List ratios	Amount	List ratios	Amount	List ratios
Gross sales	$50,000	25.0	$30,000	30.0	$80,000	26.7
Direct & variable costs	25,000	12.5	12,500	12.5	37,500	12.5
Contibution to fixed expenses and profit	25,000	12.5	17,500	17.5	42,500	14.2
Fixed & semi fixed expenses	20,000	10.0	13,000	13.0	33,000	11.0
Net profits	5,000	2.5	4,500	4.5	9,500	3.2
Percent of return on sales	10%		15%		11.8%	

Projected Operation
Group 1 - Level 1

	Sales Classification					
	A		B		Total	
Sales forecast - List values	$250,000		$110,000		$360,000	
	Amount	List ratios	Amount	List ratios	Amount	List ratios
Gross sales	$62,500	25.0	$33,000	30.0	$95,500	26.4
Direct & variable costs	31,250	12.5	13,750	12.5	45,000	12.5
Contributions to fixed expenses and profit	31,250	12.5	19,250	17.5	50,500	13.9
Fixed & semi fixed expenses	22,000	8.8	13,500	12.2	35,500	9.7
Net profit	9,250	3.7	5,750	5.3	15,000	4.2
Percent of return of sales	14.8%		17.4%		15.7%	

Comparison - Levels 1 & 2	
Increase attributed to volume	16.85%
Decrease attributed to shift of classification	- 1.15
Net percent of return on sales	15.70%

EXHIBIT 1

Level 1 represents an increase of 16.85 percent by volume and a decrease resulting from a shift in the classes of sales of 1.15 percent or a net increase of 15.7 percent. The gross sales list ratios, therefore, become the basic criteria for evaluating sales-mix as well as price fluctuation.

The supervisor who is involved with a certain area of responsibility will have knowledge as to the end result of the efforts of his department so far as its contribution to the product value produced. There will also be revealed the degree that the department operated outside the prescribed budget in relation to the product value and the related profit. This is important from a psychological point of view, in addition to keeping him informed. This because he can see his part in relation to the whole and thereby sharpens his interest in the final purpose, profits.

For illustration purposes the broad classification of manufacturing expenses is used to dramatize this analysis. A break-down of cost centers was omitted, to avoid voluminous explanation.

MANUFACTURING EXPENSES—PERFORMANCE

Contribution to product value—$600,000 list value produced

		List Ratios
Amount budgeted	$30,600	5.1
Unfavorable variance	2,600	.4
Variance arising from excess of sales over production		
$\frac{33{,}200}{\$520{,}000} - \frac{33{,}200}{600{,}000} =$		0.9
Manufacturing list ratio		6.4

The unfavorable variance is equivalent to 1.9 percent of sales which if added to the net return actually accomplished (4.1 percent) would have resulted in a net return of 6.0 percent.

In Exhibit 2, budgets are illustrated at two level of operations for Product Group 1. Experience has shown that in most industries, and especially in manufacturing, the elements of costs reflect a series of plateaus at different volume levels rather than gradual changes. Therefore, the desired flexibility of budgets is obtained by establishing them at different levels. The operating peculiarities of each enterprise govern the levels of these plateaus with respect to volume relationship.

The list value of the product group produced normally will be used to establish the ratios applicable to manufacturing expenses (Exhibit 3), while other segments of cost will be measured by the product group list value

Budget Summary

Product Group 1

	Level 1		Level 2	
Budgeted volume - list value	$500,000		$600,000	
	Amount	List ratio	Amount	List ratio
Budgeted gross sales	$125,000	25.0	$150,000	25.0
Budgeted direct cost of sales	50,000	10.0	60,000	10.0
Budgeted direct gross margin	75,000	15.0	90,000	15.0
Less: Budgeted other variables	12,500	2.5	15,000	2.5
	62,500	12.5	75,000	12.5
Less: Budgeted fixed & semi fixed exp.				
Manufacturing expenses	30,000	6.0	30,600	5.1
Selling expenses	15,000	3.0	15,600	2.6
Shipping & warehousing	4,000	0.8	4,800	0.8
Administrative & general	8,000	1.6	8,400	1.4
	57,000	11.4	59,400	9.9
Budgeted net profits	5,500	1.1	15,600	2.6
Return on sales				
Level 1 1.00				
.25 X 1.1	4.4%			
1.0				
Level 2 1.00				
.25 X 2.6			10.4%	

EXHIBIT 2

shipped during a given period. This, of course, assumes that direct costing is in use and the attendant concept of treating fixed and semi-fixed expenses as period costs.

Performance Report

Product Group 1

	Amounts			List Ratios		
	Actual	Budgeted	Vari.	Actual	Budgeted	Vari.
Sales (list values $520,000)	$135,200	130,000	5,200	26.0	25.0	1.0
Direct cost of sales	52,000	52,000		10.0	10.0	
Direct cost of sales variance	2,600		2,600	0.5		0.5
Total dir. cost of sales	54,600	52,000	2,600	10.5	10.0	0.5
Gross direct margin	80,600	78,000	2,600	15.5	15.0	0.5
Less: Other variables	13,520	13,000	520	2.6	2.5	0.1
Contrib. to fixed expenses & profits	67,080	65,000	2,080	12.9	12.5	0.4
Less: fixed & semi-fixed exp.						
Mfg. exp. (list value $600,000)	33,200	30,600	2,600	6.4	5.9	0.5
Selling expenses	15,600	15,000	600	3.0	2.9	0.1
Shipping & warehousing	4,500	4,000	500	0.9	0.8	0.1
Adm. & general	8,200	8,000	200	1.5	1.5	
Total fixed expenses	61,500	57,600	3,900	11.8	11.1	0.7
Net income before Fed. taxes	5,580	7,400	-1,820	1.1	1.4	-0.3
Net return on sales	4.1%	5.6%				

EXHIBIT 3

During the past decade, the trend toward fringe benefits has advanced to unprecedented levels. The concept of fringe benefits was based on reward, welfare needs and tax considerations. Insurance, pensions, bonus and supplemental compensation, employment taxes, and luxury benefits are part of a long list of fringe costs which must be recovered from the sales dollar. This budget suggests a plotting of the trend of these expenses in relation to sales, profits and the expenses to which they are attached. With this in mind, the plotting of fringe costs must be made concurrently with the elements of expenses to which they are attached. This to show the degree of contribution made by the segments of expense in relation to their collateral attachments. The cumulative

Cumulative Analysis - Fringe Costs

Product Group 1

			List Ratios		
	Year 1957	Year 1958	1957	1958	Accum.
List values	$2,000,000	$2,200,000			
Gross sales	500,000	539,000	25.00	24.50	24.74
Direct labor	80,000	89,000	4.00	4.05	4.02
Fringe cost direct labor	11,000	12,500	0.55	0.56	0.56
Total	91,000	101,500	4.55	4.61	4.58
Manufacturing expenses					
Labor	40,000	41,000	2.00	1.86	1.93
Fringe costs	5,500	5,700	0.28	0.26	0.27
Total	45,500	46,700	2.28	2.12	2.20
Shipping & warehousing					
Labor	20,000	22,000	1.00	1.00	1.00
Fringe costs	3,000	4,000	0.15	0.18	0.17
Total	23,000	26,000	1.15	1.18	1.17
Selling					
Salaries	30,000	33,000	1.50	1.50	1.50
Fringe costs	6,000	6,600	0.30	0.30	0.30
Total	36,000	39,600	1.80	1.80	1.80
Administrative - General					
Salaries	20,000	20,000	1.00	0.90	0.95
Fringe costs	4,000	4,500	0.20	0.22	0.20
Total	24,000	24,500	1.20	1.12	1.15
Total wages & salaries	190,000	205,000	9.50	9.31	9.40
Total fringe costs	29,500	33,300	1.48	1.52	1.50
Net profit before Federal taxes	50,000	44,000	2.50	2.20	2.24

EXHIBIT 4

development of sets of ratios will interpret trends of these fringe costs in relation to the product value as well as the expense elements to which they are attached.

In Exhibit 4, for illustration purposes, fringe costs were grouped by expense segments and in summary only. For this example, list values for shipments and production were considered to be identical. For the two year period, the content of the common-unit product value, 24.74, included fringe expense of 1.5, and net profit of 2.24. Construing it in other terms; for every 24.74 cents there were 1.5 cents of fringe costs and 2.24 cents of net profit. The trend discloses that the fringe expenses are increasing out of proportion to the profit ratio. Most important, however, is the sensitivity of measurement provided by relating these expenses to product values and their comparison to the expense segments from which they spring.

Composite List Ratios

The composite list ratio is a supplementary tool for interpreting each phase of operations in terms of a common unit. The equating of dollars into ratios of product value to costs and profits captures the meaning of each part to the whole. The sensitivity of such measurement dramatizes favorable or adverse variances. It is especially helpful in developing and controlling sales product-mix within a product group. It lends itself well toward interpreting sales and operating trends through the means of cumulative ratio values. Finally, it orients each area of responsiblity to their contribution to the product value and the related profit.

Achieved Practicability

The successful operation of any business is achieved by practical decisions based upon practical facts. To obscure these facts with impractical or unnecessary assumptions is to render more difficult the decision of management. Succinct reporting demands a simple interpretation of all operating facts in relation to the ultimate values of products and the ultimate profits therefrom. This interpretation must be in terms that readily convey at a glance their application to the present as well as future implications. To bring these two factors into proper perspective is a faculty of the first magnitude.

In the case of our company there are many products involved. We have had success in equating all elements of operations in terms of a single-product value indicator, by product group, for controlling sales, costs and profits. The

technique aims broadly at a simple method for measuring each element of cost in relation to established product values. The technique is aimed also at generating throughout operations the top-management viewpoint of the economics of our products. We have not junked cost controls at the departmental level, for these are still necessary. However, we have emphasized throughout how profits depend upon more than a singular emphasis on cost-cutting. Many collateral benefits have ensued, such as readily modifying our product-mix, with acceptance up and down the line. The simplicity of this approach has created management acceptance and use. The ratio of accounting cost to sales is maintained at a level much lower than like costs in comparable operating units. Through the means of cumulative ratio values, the trends of sales and operating costs are continually unfolding. Finally, the ease of maintaining this information generates confidence by reason of control exercised over every situation as pertains to costs and margins.

Standard Gross Profit Analysis in a Multi-Product Smaller Company

by GEORGE F. SIDDEL

ONE OF THE COMPANIES with which I am familiar recently installed a complete standard cost accounting system for the purpose of gathering more accurate product cost information and to control book inventory figures between annual physical inventories. Some significant fluctuations in gross profit which required further analysis and study were soon revealed. Additional steps were taken, with particular consideration given to changes in product mix, the effect of selling prices, changes, and allowance data.

The sales volume of about seven million is derived from four different product classes, with approximately one hundred basic items, each having many variations in size and finish. Standard costs were derived for every item sold. A system of variance accounts and accompanying reports was designed which gave management information and guidance not previously provided. The accomplishment of control on every cost element and the inventory information made available was considered to be (and was) a giant step forward. However, after two or three months experience, the financial statements began to show a constant movement up and down in the standard gross profit before cost variances were applied to arrive at the true gross profit. As all the standard product costs were incorporated into a master deck in the tabulating section and were multiplied by units of sales to create the standard cost of sales, there was little possibility of an error in the figures. It seemed logical that these fluctuations must be caused by changes in product mix. A study was made to determine a method by which this mix could be analyzed and studied. There were far too many products for a visual or manual examination of changes in sales volume and the effect on overall profit percentage.

Distributor Sales Analysis

From the master deck of standard costs, another deck was made up which included the distributor selling price, less manufacturers' excise tax, where

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applicable. Inasmuch as the company did not have tabulating equipment which would divide or take percentages, the deck was then taken to the cost department and the standard gross profit percentage was calculated on each product. This percentage was punched into the new master deck and it now contained the alphabetical product name, commodity code number, factory code, net selling price, the standard unit cost for material and labor, the unit gross profit percentage and the amount of profit per unit. The deck was now available for analyses.

Immediately after running each month's sales journal and other closing requirements, the units of sales and dollar sales are run in conjunction with the master deck. The tabulator is wired to list all items and their unit and dollar sales in gross profit percent order, and to break at the end of each five percent to provide a total of dollar sales within the group. This run is made in each of the four general product classifications and separate sales for the eastern and western factories. This is necessary because the eastern and western standard costs, and therefore gross profits, vary for the same items.

The percentage of total sales is determined for each profit group and a comparison to prior periods is made to reveal the fluctuations of group gross margin percentages. When the change is significant, it is a simple matter to compare the actual tabulations and discover which product or products changed in sales volume enough to cause the variance. The effect of selling price changes also immediately becomes apparent as these changes are made in the master deck at the same time as the price change is begun in the billing process. The effect on gross profit of introducing new products is also readily ascertainable. A quarterly report is issued which appears in outline in the given example (Exhibit 1).

Having accurately reported the reasons for the fluctuating profit, it then became apparent that more analysis would be required to determine why the gross profit as indicated by the analysis was greater than that shown on the monthly income statement. A large part of this difference was due to the fact that various quantity and special trade discounts had been given in this business for years. It was found that these discounts could be obtained in total form from tabulating records, since they were separately shown on the invoice and were punched in the sales tab cards. However, they had not been regularly reported and few in management knew their extent or their percentage to sales. As a subsidiary report to the above, these discounts were listed by product group and by plant so that the amounts could be compared to the amount of "missing" gross profit. It was also recognized that a few sales were made each month to

"A" COMPANY - GROSS PROFIT ANALYSIS - PLANT 2

Percentage of Sales in Profit Groups

Gross margin	Product group A		Product group B		Total	
	Year 1958	1st Qtr. 1959			Year 1958	1st Qtr. 1959
25-30%	1.64%	3.33%	etc.	etc.		
30-35	6.01	6.70				
35-40	6.09	7.73				
40-45	26.11	51.78				
45-50	5.99	19.99				
50-55	29.03	10.38				
55-60	16.17	.09				
60-65	8.96	-				
	100.00%	100.00%	etc.	etc.		
Std. gross profit from analysis	47.27%	44.69%				
Std. gross profit from state-ments	44.75%	42.07%				

EXHIBIT 1

other than distributors which were at a higher price than the standard distributor price. These were investigated and found to be far too small to noticeably change the results.

Effect of Special Prices to the Government

Another type of sale was also found to account for part of the missing gross profit. While not frequent in number, the dollar amounts were often quite large. These were sales to government housing projects or exceptionally large commercial building ventures where, by virtue of the recognized savings in other expenses, it was possible to quote a lower price than the regular distributor price. Since this reduction from standard distributor price was not reflected as such in the tabulating records, arrangements were completed with the order department and tabulating to show both the regular price and the special price

on the instructions for billing these quoted price sales. Tabulating, instead of punching a special billing card for these sales, now puts in a minus card along with the regular tub file price card, which allows the printing of the invoice on one line as desired. These minus cards are available at the end of the month and from them a list of discounts resulting from special quotes is run by product, customer number and invoice number.

Supplemental to Cost Variance Analysis

Consideration was given to the feasibility of multiplying all unit sales by the desired selling prices to arrive at the optimum gross profit. This idea was discarded, because many thousands of additional calculations would have to be made and, although this would show what gross profit the company could have made, it was considered more practical to work from the standard distributor prices and account for the different discounts separately.

After the initial preparation of the master deck, the methods described here take up a minimum of machine time and cost department work. Accumulations by months, quarters or years can be kept manually in cost department work papers or summary punched on cards as desired. All tabulations are kept chronologically in binders to form the historical reference guides.

With the inclusion of the special discount and special quotation sales figures, the analysis of the "missing" gross profits is complete. There exists a comparison of the effect of product mix on gross profits between periods, based on standard distributor prices and an accounting of the effect of discounts and special sales on gross profit. When this is coupled with the cost variances, management is provided with complete knowledge of the transactions resulting in the very important but often overlooked line in the operating statement, gross profit from operations.

Reports Which Give Effect to Responsibility Accounting

by EDWARD J. PHILLIPPE

ONE OF THE MOST irritatingly persistent — and one of the most vital — problems which confront business management today is the question of what to do about controlling expenditures. The real need is for a tool which will identify the individuals responsible for expenditures and provide them with periodic reports on the results of their operation. Such a tool is a system of accounting and reporting which has come to be known as "responsibility accounting."

Responsibility accounting can be described as a system of reports for all levels of management, designed to provide information which can be used to control expenditures most effectively and which directly relates the reporting of expenditures to the individuals responsible for their control. Responsibility accounting also lends itself to the operation of a good budget system. Supervisory personnel in an organization who are granted the responsibility for the expenditure of cash should also participate in the planning as to how the company's funds should be spent. If the results of this planning are to become a part of periodic reports, each responsible individual will want his expenditures to be measured against his own budget estimates. If the estimates are not his own, he will probably make little or no attempt to use the information as a means of controlling his operations. It follows, then, that a necessary step toward obtaining this objective is for each responsible individual to participate directly in forecasting his expenditures. When this approach to budgeting has been accepted, there still remains one more important step to complete the overall responsibility concept. Actual expenditures must be reported on the same basis and using the same classifications as those used for budgeting. When this has been accomplished, the system of responsibility accounting, tailored to the company by area of responsibility identified directly from organization charts, can be most effective.

This article illustrates and explains a system of responsibility accounting and reporting for a medium-sized lumber manufacturing concern. However, these general procedures (with suitable modifications) could be applied to any type of organization. Our hypothetical company has been named XYZ Company.

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Areas of Responsibility Identified by Organization Chart

The first major step in developing a responsibility accounting system is identifying lines of responsibility and individual responsibility areas. The organization chart developed for the XYZ Company is illustrated in Exhibit 1.

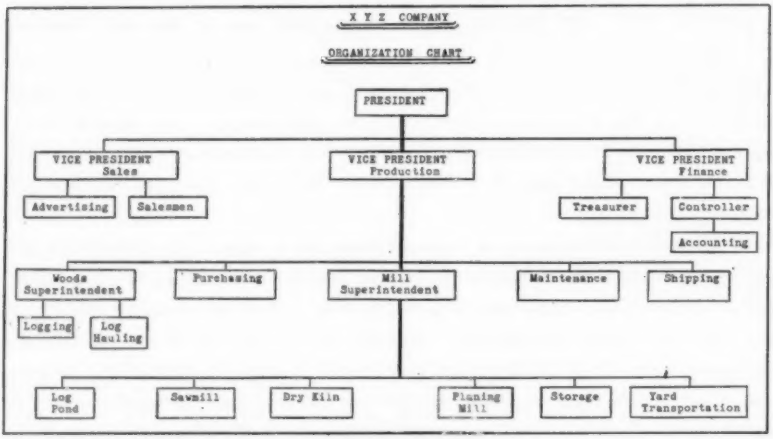

EXHIBIT 1

This chart shows a president of a single company. It could, of course, apply to a general manager of an autonomous plant or division of a company. Reporting directly to the president are the three vice-presidents, who are responsible for sales, production and finance. The vice-president in charge of production has both a woods superintendent and a mill superintendent, who are responsible for the productive departments, each of which has a foreman in charge. In addition, the service departments for maintenance, purchasing and shipping are directly responsible to the vice-president in charge of production.

All-Level Reporting by Personalized Statements

The first reporting level consists of the six production departments. Exhibit 2 shows the monthly responsibility report for the foreman of the sawmill department which is one of the six production departments. Each of the departmental foremen would receive a similar report, but for purposes of illustration only one department is shown. The expenses reported in the amount column for each operation are the expenditures for which the sawmill foreman is held responsible by the management. These actual expenses are compared with the budgeted expenses. In addition, the foreman is furnished detailed statements

SAWMILL DEPARTMENT

	Amount		(Over) or Under Budget	
	This Month	Year to Date	This Month	Year to Date
Foreman's office				
Supervision	$ 600	$ 4,025	$ (40)	$ (150)
Clerical	300	1,530	(25)	(110)
Timekeeping	350	3,090	(30)	(210)
Bull chain	3,055	24,000	340	1,000
Head rig	20,380	143,660	(2,255)	(3,995)
Pony rig	10,215	73,450	505	1,015
Trimmer	12,225	89,005	895	(1,550)
Edger	5,660	32,175	(180)	595
Resaw	9,680	66,330	500	1,435
Gangsaw	3,445	36,400	780	1,865
Green chain	18,450	128,985	(2,475)	(5,590)
Total	$84,360	$602,650	$(1,985)	$(5,695)

EXHIBIT 2

which are not illustrated here, showing labor and other direct expenditures for each function listed on this report. The classifications are flexible, so that classifications used in one productive department need not be the same as those of another. The report to each foreman may show his expenses in the detail and classification that he believes to be most useful to him in controlling his own expense. Also, productive statistics, such as productive labor, can be furnished as the foreman desires.

LUMBER MANUFACTURING DEPARTMENT SUMMARY

	Amount		(Over) or Under Budget	
	This Month	Year to Date	This Month	Year to Date
Superintendent's office				
Supervision	$ 1,000	$ 7,200	$ (20)	(200)
Clerical	550	3,950	(40)	20
Log pond	5,770	47,635	445	2,310
Sawmill	84,360	602,650	(1,985)	(5,695)
Dry kiln	23,375	174,465	2,750	6,455
Planing mill	76,770	528,890	3,655	775
Storage	7,425	56,480	(715)	(2,350)
Yard	20,985	135,920	(1,470)	(3,975)
Total	$220,235	$1,557,190	$2,620	$(2,660)

PRODUCTION STATISTICS

	This Month		Year to Date	
	Quantity	Per M	Quantity	Per M
Sawmill	15,338 M	$5.50	104,085 M	$5.79
Dry kiln	9,541 M	2.45	85,943 M	2.03
Planing mill	12,147 M	6.32	88,591 M	5.97

EXHIBIT 3

The second reporting level is that of the mill superintendent. Lumber Manufacturing Department Summary (Exhibit 3) is directed to this superintendent.

The total amount of $84,360, representing the total expenditures for the month in the sawmill department, has been carried forward to this report. Also, the total expenditures have been carried forward from other departments for which the mill superintendent is held responsible. Since the mill superintendent is also responsible for the expenses of his own office, these expenses are shown on this report and are supported by a detailed statement which is not shown here. The bottom section of the report contains production statistics showing quantity produced and costs measured in thousand board feet (per M). The reporting of these statistics is deemed necessary by the superintendent so that he can effectively evaluate the performance of these operations. The Production Department Expense Summary (Exhibit 4) is for the vice-president in charge of production. The total amounts of expenditures for the mill superintedent have been carried forward as one of the areas for which the vice-president in charge of production is held responsible. The other areas of responsibility for the vice-president of production are also shown. The expenses of the vice-president's own office are set forth in total and, when combined with the expenditures of all other areas, the final total includes all expenses for which the vice-president is accountable.

PRODUCTION DEPARTMENT EXPENSE SUMMARY

	Amount		(Over) or Under Budget	
	This Month	Year to Date	This Month	Year to Date
Vice-Presidents' office	$ 2,740	$ 16,370	$ (140)	$ (710)
Woods superintendent	193,255	1,288,540	(7,570)	(25,775)
Mill superintendent	220,235	1,557,190	2,620	(2,660)
Maintenance	12,920	77,975	1,755	6,015
Purchasing	6,530	41,610	160	150
Shipping	20,465	154,220	(1,920)	(7,365)
Total	$456,145	$3,135,905	$(5,095)	$(30,345)

EXHIBIT 4

The statement for the top level of management, the president, is the final link in the chain of responsibility reports. The Departmental Expense Summary (Exhibit 5) is a concise summary of the entire company with respect to departmental expenditures by comparing actual with budget. Note that, since our responsibility reporting is tailored to the XYZ Company's operations, the side captions relate directly to our organization chart.

This report for the top level of responsibility presents in summary form the totals of expenditures for which the respective department heads are held responsible. Before preparing the conventional financial statements, we must

DEPARTMENTAL EXPENSE SUMMARY

	Amount		(Over) or Under Budget	
	This Month	Year to Date	This Month	Year to Date
President's office	$ 9,750	$ 67,430	$ 250	$ 930
V.P. production	456,145	3,135,905	(5,095)	(30,345)
V.P. sales	14,475	97,410	1,650	(6,735)
V.P. finance	8,980	56,125	(555)	2,605
Total departmental expenses	$489,350	$3,356,870	$(3,750)	$(33,545)

EXHIBIT 5

combine this total with the expenses not assigned to departments, such as depreciation, taxes and insurance. These expenses cannot be defined as being controllable by departmental supervisors and, therefore, have not been assigned to any particular responsibility area for reporting purposes. The resulting combined amount represents the total operating expenses incurred for the period. After adding the cost of logs, customary accounting allocations are applied to this total to derive product cost, inventory pricing data, etc., necessary for conventional financial statement preparation and tax purposes.

Stress Is on Usefulness

In closing, I would like to point out that responsibility accounting is primarily a change in emphasis from product cost reporting to the more fundamental cost control aspects of accounting. It is a system which stresses information that is useful to operating management, and assists them in solving the problem of what to do about controlling expenditures.

Beyond These Covers

Books

Fundamentals of Accounting

Mason, Davidson & Schindler, Henry Holt & Co., 383 Madison Ave., New York 17, N. Y., 1959, Fourth Edition, 910 pp., $7.50.

A first-year accounting text, this book follows the organization of its earlier editions, with new chapters on internal control and managerial uses of cost data and with continued stress on cost accounting and cost analysis. There is "relatively thorough" exploration of logic basic to accounting.

Auditing—Principles and Procedure

Arthur W. Holmes, Richard D. Irwin, Inc., Homewood, Illinois, 5th Edition, 1959, 883 pp., $9.

A separately issued set of working papers is available in connection with this newly revised text intended for both student and practitioner. Modern trends have influenced the revision, as exemplified by Sections 2 of Chapters 7 and 8. These sections supplement the topic of "original record examination" with material on "sample selection" and "electronically prepared records and their examination."

Internal Audit and Control of Facilities

Institute of Internal Auditors, 120 Wall Street, New York 5, N. Y., Paper bound, 1959, 64 pp., $1.

This publication is Research Committee Report No. 7 of the Institute of Internal Auditors and deals largely with fixed asset control from purchase or construction through depreciation and disposition. There is a chapter on control of idle and fully-depreciated facilities and one on control of facilities not capitalized.

Federal Budgeting

Federal Accountant, c/o Martin C. Powers, 1523 L Street, N.W., Washington 5, D. C., $1.25.

This special issue of the *Federal Accountant* is devoted to the development and growth of budgeting and cost control in the U. S. Government. It consists of four papers, including one by Budget Director Maurice H. Stans, a reprint of "Cost Control in the Federal Government" (a pamphlet prepared by a committee of the District of Columbia Institute of Certified Public Accountants), and excerpts from the 1921 and 1950 (amended) budget acts.

Economics of the Business Firm

Joseph D. Coppock, McGraw-Hill Book Co., 330 West 42nd Street, New York 36, N. Y., 366 pp., $7.50.

Accounting readers of this college and graduate school textbook will see the subject matter of their daily work set in a context which may not be part of their daily thinking. This setting includes the economics of profit maximization and "determinants of demand" for the firm's product and of its cost, the last-named from the viewpoints of "technical conditions and prices of inputs."

Industrial Organization

Joe S. Bain, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y., 1959, 643 pp., $9.25.

Size and structure of American business enterprises come in for historical review, appraisal, and analysis in this economics text. Market structures are likewise treated. "Workable performance in the dimension of efficiency" is a subtopic which indicates the general manner in which the topic of company size is developed.

Corporate Earning Power and Market Valuation

Cottle and Whitman, Duke University Press, College Station, Durham, North Carolina, 1959, 201 pp., $12.50.

The years 1935 through 1955 are covered in this presentation, prepared largely for financial analysts. It provides "earnings rate

on total capital" (together with rates of earnings to sales and of sales to total capital) for some fifty lines of business and over-all, based on a sample consisting of 150 companies.

1958 Statement Studies

Robert Morris Associates, Philadelphia National Bank Bldg., Philadelphia 7, Penna., 1959, Paper bound, 233 pp., $10.

A portion of the general thirst for seldom available data on percentages of detail items to total assets and to sales in various lines of business and sizes of companies may be slaked by the tabulations given here—a "37th annual publication of composites of industrial and trade financial statements."

Use of Electronic Data-Processing Equipment

Government Printing Office, Washington 25, D. C., 1959, Paper bound, 142 pp.

This report contains as Appendix C a study, "Personnel Problems of the U. S. Government in the Adoption and Use of Automatic Data Processing Systems." The study relates to 250 such installations plus a substantial number of installations in private business. It was prepared by the Chicago consulting firm of Lester B. Knight & Associates for the Bureau of the Budget.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF THE N.A.A. BULLETIN (Formerly N.A.C.A. Bulletin) published monthly at New York, N. Y., for October 1, 1959.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, National Association of Accountants, 505 Park Avenue, New York 22, N. Y.; Editor, George F. Wyman, 505 Park Ave., New York 22, N. Y.; Managing Editor, None; Business Manager, Raymond P. Marple, 505 Park Avenue, New York 22, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners, must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.) National Association of Accountants, 505 Park Ave., New York 22, N. Y.; President, Leslie I. Asher, Manager, Finance, G. E. Corp., 1000 Western Ave., W. Lynn, Mass.; Secretary, Arthur B. Gunnarson, 505 Park Ave., New York 22, N. Y.; Treasurer, Charles H. Towns, Lybrand, Ross Bros. & Montgomery, 50 Broad St., New York 4, N. Y.

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4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

GEORGE F. WYMAN, Editor

Sworn to and subscribed before me this 14th day of September, 1959.

[SEAL]

JESSIE KERR REVER
Notary Public, State of New York
No. 30-3258425
Qualified in Nassau County
Certs. filed with New York Co. Clerk
(My commission expires March 30, 1961)

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